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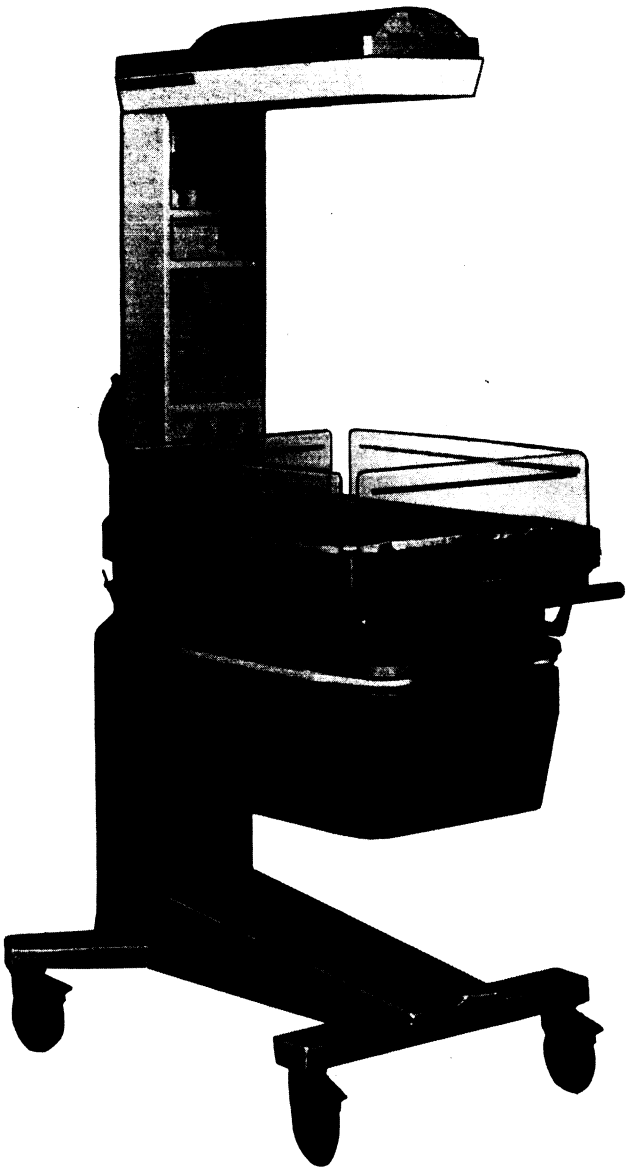
SCITAIRE™ RADIANT WARMER



SERVICE MANUAL

E

Air-Shields Vickers Medical

LIMITED

WARRANTY

The product being described in this manual is warranted against defects in materials or workmanship for one year from the date of shipment from Air–Shields, Hatboro, with the following exceptions:

All consumable and disposable products are guaranteed to be free from defects upon shipment only.

Calibrations are considered normal maintenance and are not included in the 1 year warranty.*

During the warranty period any defective parts other than those listed above will be replaced at no charge to the customer. There will be no labor charge for replacing the parts within the continental U.S.

This warranty is rendered void and Air–Shields cannot be held liable for conditions resultant therefrom if:

1. Damage to the unit is incurred as a result of mishandling.
2. The customer fails to maintain the unit in a proper manner.
3. The customer uses any parts, accessories, or fittings not specified or sold by Air–Shields.
4. Sale or service is performed by a non–certified service/dealer agency.

This warranty is in lieu of all other warranties, expressed or implied, and Air–Shields shall in no event be liable for incidental or consequential damages including loss of use, property damage, or personal injury resulting from breach of warranty.

*The Accreditation Manual for Hospitals requires each piece of equipment to be tested prior to initial use and at least annually thereafter. To comply with this standard, we recommend that you participate in our Accreditation Testing Compliance Program during the warranty period. This service can be performed by certified technicians through our Product Service Group and authorized dealers.

SERVICE

For optimal performance, product service should be performed only by qualified service personnel. Product Service Group instrumentation specialists are located throughout the United States and are dispatched for required maintenance by calling 800–523–2404. Customers outside the U.S. should contact their local factory–authorized Air–Shields' distributor for service.

Air–Shields Vickers Medical
330 Jacksonville Road, Hatboro, PA 19040

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PLEASE READ

Please check the A page for change information.

Since Air–Shields conducts a continuous product improvement program, circuit and component improvements are sometimes incorporated into equipment before they can be incorporated into the printed manuals. When this occurs, changed material is provided on separate sheets at the rear of the manual or under separate cover in the form of a change package. Changed material on each page of text is indicated by a vertical bar in the margin next to the changed material, as shown on the right.

THIS MANUAL CONTAINS PROPRIETARY INFORMATION. REPAIRS AND AUTHORIZED MODIFICATIONS SHOULD BE PERFORMED ONLY BY QUALIFIED SERVICE PERSONNEL TO MAINTAIN YOUR WARRANTY AND TO AVOID CREATING SAFETY HAZARDS. WE CANNOT ASSUME RESPONSIBILITY FOR ANY CONDITIONS AFFECTING THE PROPER OPERATION OF THIS EQUIPMENT WHICH MAY RESULT FROM UNAUTHORIZED REPAIR OR MODIFICATION.

NOTE ON REPLACEMENT PARTS

Some parts used in your equipment may be different than those which appear in the Parts List of this manual. This sometimes occurs due to difficulty in parts procurement, but does not alter the function of the equipment. Order the part listed in the Parts List.

NOTE: ALSO SEE PAGE 2.

THERE ARE NO MODIFICATIONS AVAILABLE.

LIST OF EFFECTIVE PAGES

PAGE NO.	CHANGE NO.	DATE OF ISSUE
Front Cover	0	11/94
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LIST OF DEFINITIONS AND SYMBOLS

TECHNICAL DEFINITIONS

RESUSCITATOR. A portable device used in emergency situations to provide lung ventilation to individuals whose breathing is inadequate. The Resuscitation Module used in the Resuscitaire™ Radiant Warmer contains pneumatic circuitry necessary for infant resuscitation.

PNEUMATICS. Dealing with the properties of air and other gases. The following pneumatic circuits are contained in the Resuscitation Module: a suction circuit, a patient Oxygen delivery circuit and an auxiliary Oxygen delivery circuit.

BLENDER. A device which provides blended Oxygen. The Blender Module is an option that can be used in the Resuscitaire™ Radiant Warmer. The Blender Module mixes Oxygen and Air and provides an O_2 Concentration Level of blended Oxygen from 21 to 100%.

OFF–LINE DIAGNOSTIC. A series of 17 tests, embedded in the internal software, which enable the user to test the operation of the Resuscitaire™ Radiant Warmer when the equipment is not in the Operating Mode.

NOTE, IMPORTANT, CAUTION, AND WARNING

NOTE: *A NOTE is inserted in text to point out procedures or conditions which may otherwise be misinterpreted or overlooked. A NOTE may also be used to clarify apparently contradictory or confusing situations.*

IMPORTANT: *Similar to a NOTE but used where greater emphasis is required.*

CAUTION: A CAUTION is inserted in text to call attention to a procedure which, if not followed exactly, can lead to damage or destruction of the equipment.

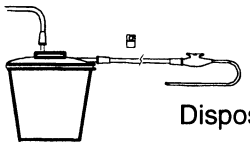
WARNING: A WARNING is inserted in text to call attention to dangerous or hazardous conditions inherent to the operation, cleaning, and maintenance of the equipment which may result in personal injury or death of the operator or patient.

SYMBOLS

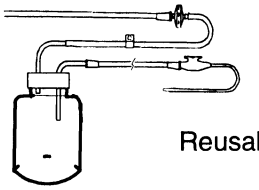
Attention: consult accompanying documents.

Type B equipment with an F–type isolated (floating) applied part.

Danger! High Voltage!

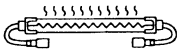


Disposable Suction Bottle



Reusable Suction Bottle

Patient



Heater Element

Suction Line Filter

Load Symbol

Examination Light

Examination Light Switch

Mode Control Key

Temperature Override Mode Key

Keypad Lock Key

Set Temperature Keys

Power On/Off Switch

Celsius/Fahrenheit Selection Key

Silence/Reset Key

Procedural Silence Indicator

Apgar Timer Reset Key

Apgar Timer Start/Stop Key

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SECTION 1
GENERAL INFORMATION

1.1 INTRODUCTION

This manual provides the instructions for installation, maintenance and repair of the **Resuscitaire™ Radiant Warmer.**

This manual is intended for use only by trained, qualified service personnel. Instructions for the operation of the equipment are provided in a separate Operator's Manual.

1.2 DESCRIPTION

The **Resuscitaire™ Radiant Warmer** System is designed specifically for labor and delivery room use. The **Resuscitaire™ Radiant Warmer** consists of a Bassinet, a Warmer, and a Controller Module which provides heat control, monitoring of skin temperature and Apgar timing. The **Resuscitaire™ Radiant Warmer** also includes a basic resuscitation package which includes suction and Oxygen delivery.

1.3 OPTIONS/ACCESSORIES

The options and accessories available for the **Resuscitaire™ Radiant Warmer** are listed below and illustrated in Figure 1.1. Refer to Section 6 for Replacement Parts and Part Numbers.

FACTORY INSTALLED OPTIONS

- Resuscitation Gas Module with AutoBreath Infant Resuscitator
- O_2 Pipeline Supply Module
- O_2/Air Pipeline Supply Module
- O_2/O_2 Reserve Supply Module
- O_2/Air Reserve Supply Module
- Integrated Precision Blender

FIELD INSTALLED ACCESSORIES

- Instrument Tray (left or right or left and right mounting)
- Pass–Through Drawer Tray
- Air Hose Assembly, USA (10ft)
- Air Hose Assembly, Black, European, Nist (10ft)
- Oxygen Hose Assembly, USA (10ft)
- Oxygen Hose Assembly, White, European, DISS (10ft)
- X–Ray Cassette Tray
- Monitor Shelf
- Infusion Pump/I.V. Pole

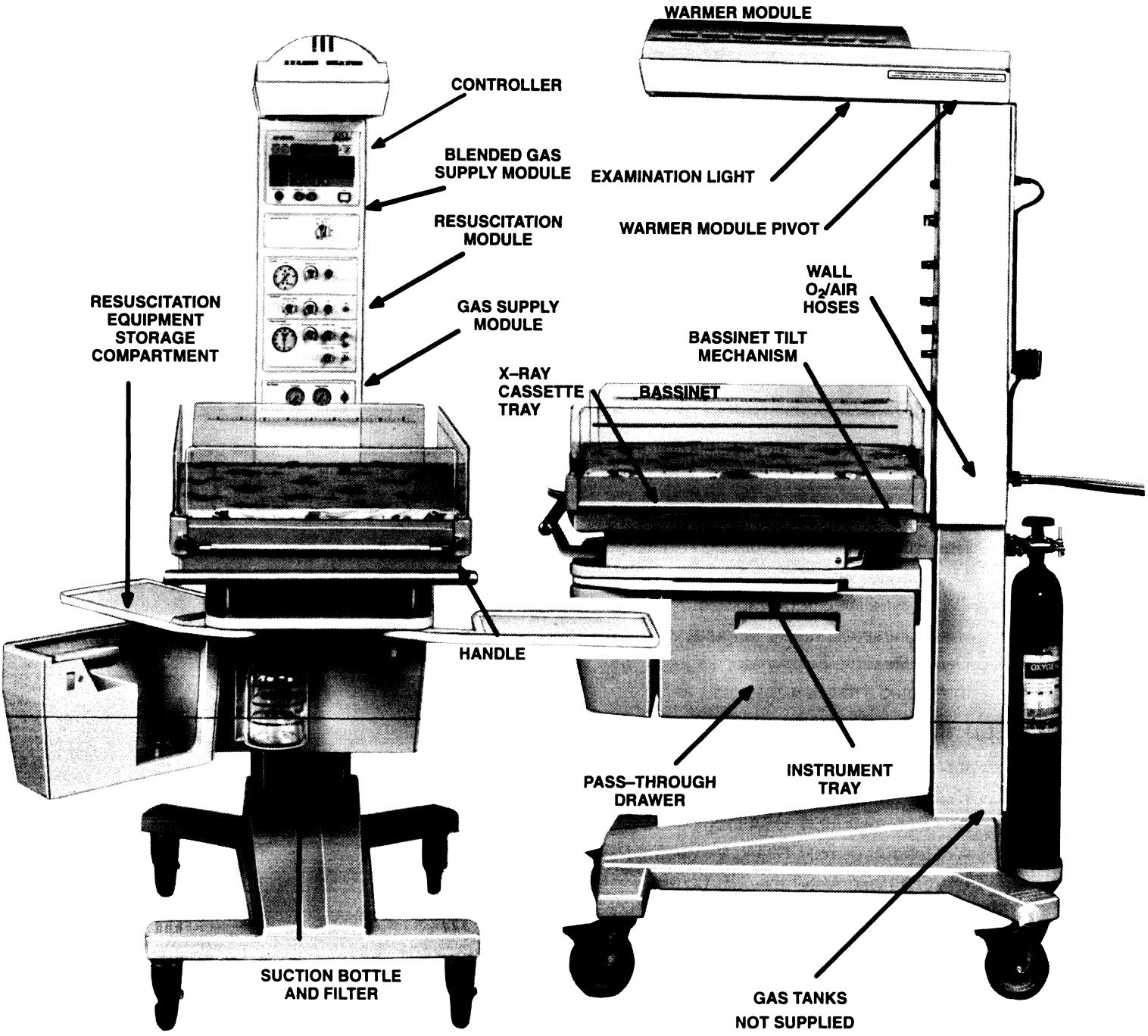


FIGURE 1.1 EQUIPMENT PROVIDED WITH FACTORY INSTALLED OPTIONS AND FIELD INSTALLED ACCESSORIES

SECTION 2
INSTALLATION

2.1 UNPACKING

The **Resuscitaire™ Radiant Warmer** is shipped in one carton which contains the following assemblies:

- Bassinet/Cart Assembly
- Upper Post Assembly
- Warmer Module Assembly
- Any user installed accessories that were ordered

2.2 ASSEMBLY (Refer to Figure 2.1)

NOTE: *The required mounting hardware is stored in a bag located in the pass–through drawer.*

1. **REMOVE THE BACK COVER** (1) from the Upper Column (2).
2. **REMOVE THE CONTROLLER** (3) from the Upper Column.
3. **MOUNT THE UPPER COLUMN** on the Bassinet/Cart using four 10 – 32 x 1/2 inch screws provided.
4. **CONNECT THE SUCTION HOSE** (4) to the white barb fitting of the suction generator located at the left rear corner of the Resuscitation Module.
5. **INSTALL TWO 10 – 32 X 1/2 INCH SCREWS IN THE UPPER HOLES OF THE WARMER** (5). Do not tighten the screws.
6. **RAISE THE WARMER** above the open end of the Upper Column (2) and insert the Power Cable (10) into the open end of the column.
7. **SLOWLY LOWER THE WARMER** onto the Upper Column. Tighten the upper screws and install the remaining 10 – 32 x 1/2 inch screws.
8. **THREAD THE WARMER POWER CABLE** out through the Controller opening. Connect the Power Cable to connector J4 on the Controller.
9. **REMOUNT THE CONTROLLER** on the Upper Column. Remount the Back Cover (1) on the Upper Column.
10. **CONNECT THE LINE CORD** (6) to the **POWER** Connector on the rear of the Controller.
11. **SECURE THE LINE CORD** to the Back Cover using the Cable Clamp (8) and 8 – 32 x 3/8 screw (9).

CAUTION: Securing the Line Cord to the Back Panel is required to prevent removal of the Controller chassis with the ac power applied.

12. **INSTALL ANY ACCESSORIES** that were ordered using the installation instructions provided with the accessory.
13. **INSTALL THE END AND SIDE PANELS** on the Bassinet.

PARTS LIST

Screw, 10 – 32 x 1/2 TR, PH SS NY STP (Qty 8)	99 042 07
Screw, 8 – 32 x 3/8 TR PH SS	99 031 38
Cable Clamp	17 725 64

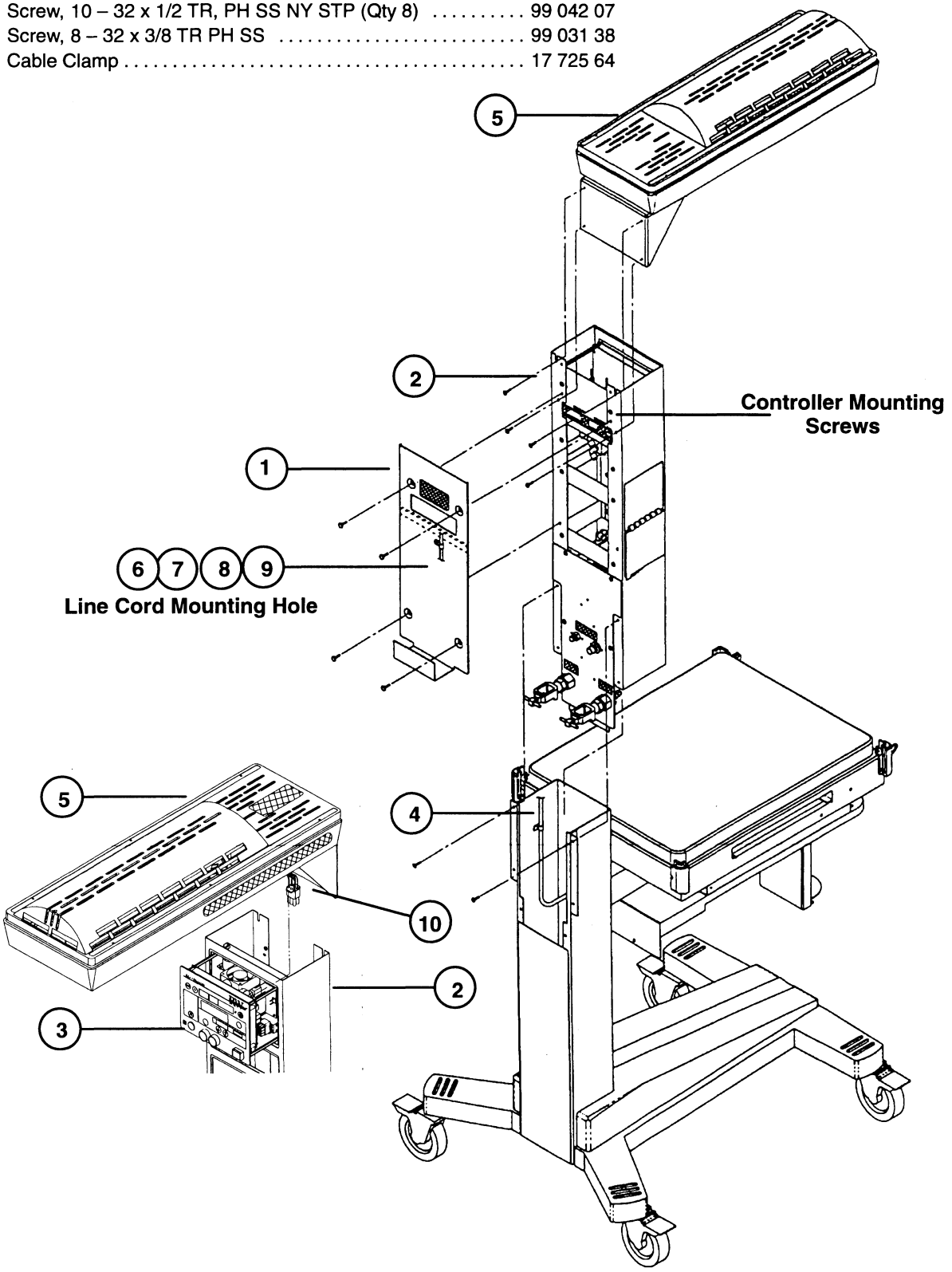


FIGURE 2.1 INSTALLATION

2.3 OPERATIONAL CHECKOUT PROCEDURE – CONTROLLER

WARNING: The Warmer should not be used if the Controller fails to function as described below.

CAUTION: HEAVY EQUIPMENT – To prevent injury or damage to the Warmer, two persons of sufficient strength are required to adequately control the Warmer during transport.

1. **CONNECT THE AC LINE CORD TO THE POWER CONNECTOR** on the Rear Panel.

WARNING: Connect the power cord only to a properly grounded wall receptacle that is approved for hospital–use and of the correct voltage. DO NOT use extension cords or an ac Receptacle Box for this device.

2. **CHECK THE POWER FAILURE ALARM.** Turn *Off* the **CIRCUIT BREAKER** on the Rear Panel. Turn *On* the **Power Switch** on the Front Panel. The **Power Fail Indicator** should come on and the audible alarm should sound. Turn *Off* the **Power Switch** and turn on the **CIRCUIT BREAKER.**

   NOTE: *The Unit must be connected to the ac line for at least three minutes before the Power Fail Circuitry becomes active.*

3. **CHECK THE SELF–TEST FUNCTION.** Turn *On* the **Power Switch**. The Self–Test Function should be initiated and the following should occur:

   - **Apgar Timer, Baby Temperature** and **Set Temperature Digital Displays** show all eights.
   - All **Alarm Indicators** (with the exception of the Power Fail indicator) light.
   - All **Mode** Indicators light.
   - The **> 37 °C Indicator** lights.
   - All ten segments of the **Heater Power** Indicator light.
   - The **Procedural Silence Indicator** lights.
   - The **Keypad Lock Switch** lights.
   - The audible alarm will sound a high pitch tone, a low pitch tone, then a beep–beep–beep.

   When the Self–Test Function is complete, the Controller should begin operating in the **Pre–Warm Mode**.

4. **CHECK THE PRE–WARM MODE.** The **Pre–Warm Indicator** should be *On* and the **Heater Power Indicator** should display 10 segments (100%) for three minutes, reduce to 6 segments (60%) for 12 minutes, then reduce to 3 segments (30%).

5. **CHECK THE MANUAL MODE.** Select **Manual Mode** by pressing the **Mode Select Key**. The **Manual Indicator** should light.

   Press the Up Arrow Key until all the **Heater Power Display** segments are lit. Press the Down Arrow key until all the **Heater Power Indicators** are *Off*. Connect the Skin Temperature Probe to the **Skin Temp Probe** Connector, the **Baby Temperature Display** should come *On*.

   Set the **Heater Power Indicator** to 100%, all segments are lit. Wait 10 minutes. After 10 minutes have elapsed, the **Chk Patient Indicator** should come *On* and the audible alarm should sound

one time. Wait an additional 5 minutes. During this time the audible alarm should sound at 30–second intervals. At the end of 5 minutes (15 total), the heater should shut down and the **Heater Power Indicators** should go *Off*. Press the **Silence/Reset Key**, the **Chk Patient Indicator** and audible alarm should go *Off* and the heater should come back *On* along with the **Heater Power Indicators**.

6. **CHECK THE KEYPAD LOCK.** Press the **Keypad Lock Switch**. The **Keypad Lock Switch** should light up. The **Mode Key, Up/Down Arrow Keys** and the **°C/°F Key** should be inoperative. Press the **Keypad Lock Switch** again. The **Keypad Lock Switch** light should go *Off* and the Keypad should be enabled.

7. **CHECK THE BABY MODE.** Select **Baby Mode** by pressing the **Mode Select Key**. The **Baby Indicator** should light and the **Set Temperature Display** should activate. In addition, the **Baby Temp Indicator** should flash and the audible alarm should sound. Press the **Silence/Reset Key**, the audible alarm should go *Off*, the **Baby Temp Indicator** should become steady *On*.

8. **CHECK TEMPERATURE OVERRIDE MODE.** Press the **Up Arrow Key** to raise the **Set Temperature** to 37.0 °C. Press the **>37 °C Key**, the **>37 °C Indicator** should come *On*. Press the **Up Arrow Key** again to raise the Set Temperature to 38.0 °C.

   Press the **Down Arrow Key** to lower the Set Temperature to below 37.0 °C. When the **Set Temperature** falls below 37.0 °C, the **>37 °C Indicator** should go *Off*.

9. **CHECK THE PROBE ALARM.** Disconnect the Skin Temperature Probe from the **Skin Temp Probe** Connector. The **Baby Temperature Display** should go *Off*, the **Probe Indicator** should flash and the audible alarm should sound.

10. **CHECK THE APGAR TIMER.** Press the **Start /Stop Key**, the **Apgar Timer Display** should come *On* and begin to count up from zero seconds. Press the **Start/Stop Key**, the **Apgar Timer** count should stop. Press the **Reset Key**, the **Apgar Timer Display** should go *Off*.

11. **CHECK THE EXAMINATION LIGHT.** Press the **Exam Light Switch**. The Examination Light should come on. Press the **Exam Light Switch** again, the Examination Light should go *Off*.

2.4 MECHANICAL CHECKOUT

1. **CHECK THE MATTRESS TILT CONTROL** (Figure 2.2) by pulling up on the lever, located at the bottom rear of the Bassinet while supporting the rear lower edge of the Bassinet with the palm. Place the Bassinet in the 5–degree and then the 10–degree tilt position. Return the Bassinet to the level position.

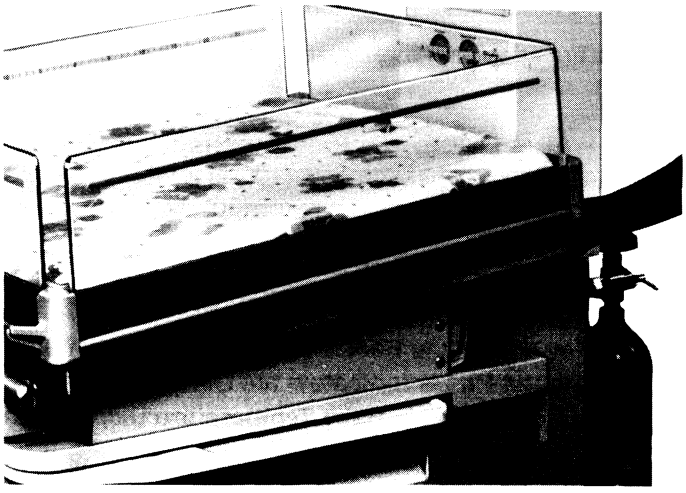


FIGURE 2.2 BASSINET TILT CONTROL

2. **CHECK THE BASSINET SIDE PANELS** (Figure 2.3) by raising each panel. Pivot it to hang straight down. Return the panel by reversing the procedure. Check that the panel is positively engaged to confine the infant.

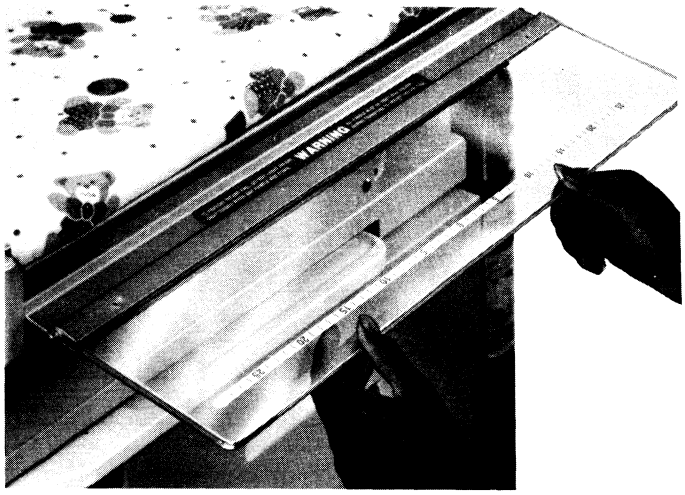


FIGURE 2.3 CHECKING THE BASSINET SIDE PANELS

3. **CHECK THE BASSINET FRONT PANEL** (Figures 2.4 and 2.5) by raising the panel and sliding it under the mattress. Return the panel by reversing the procedure. Check that the panel is positively engaged to confine the infant.

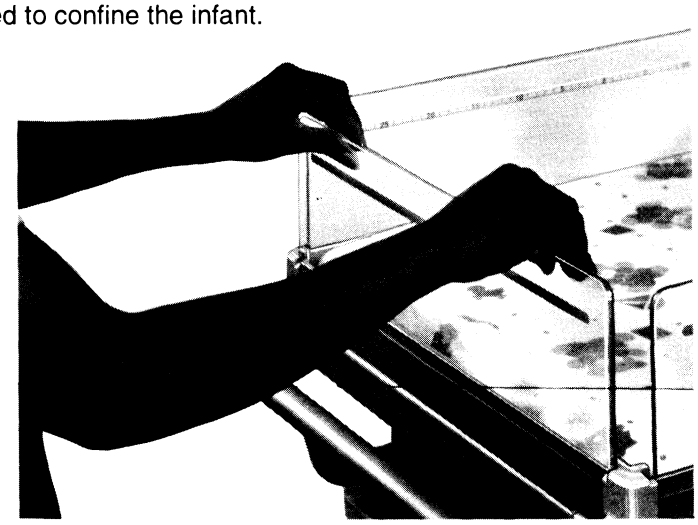


FIGURE 2.4 CHECKING THE BASSINET FRONT PANEL (RAISING THE PANEL)

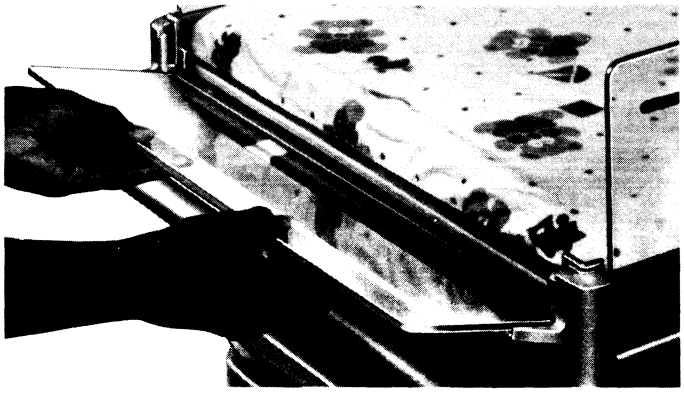


FIGURE 2.5 CHECKING THE BASSINET FRONT PANEL (SLIDING THE PANEL)

4. **CHECK THE PASS–THROUGH DRAWER** (Figure 2.6) by sliding the drawer in and out on both sides of the Bassinet. Return to the center position.

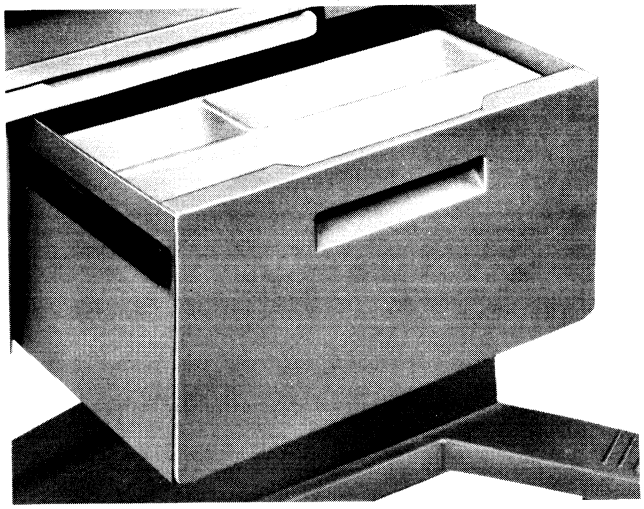


FIGURE 2.6 CHECKING THE PASS–THROUGH DRAWER

5. **CHECK THE WARMER MODULE SWIVEL OPERATION** (Figure 2.7) by rotating the Warmer Module 90 degrees to the left and right of center. Return to the center position.

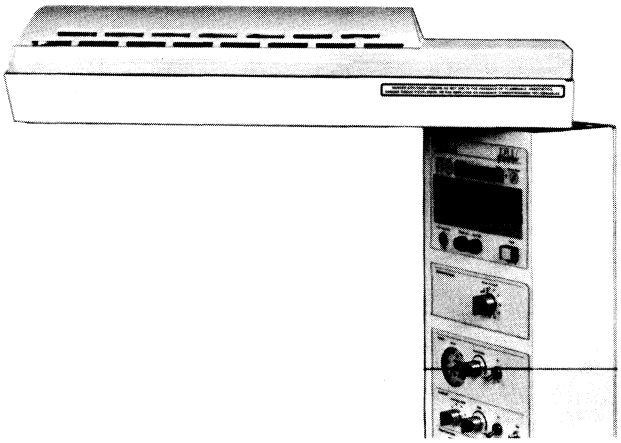


FIGURE 2.7 CHECKING THE WARMER MODULE SWIVEL

6. **CHECK THE OPERATION OF THE X–RAY CASSETTE TRAY (ACCESSORY)** in Figure 2.8 by grasping the middle of a Side Panel and pulling the X–Ray Cassette Tray out from under the Bassinet. Replace the X–Ray Cassette Tray by reversing the procedure.

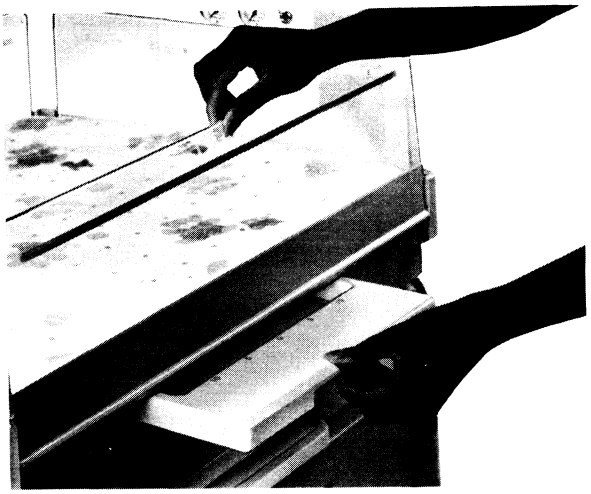


FIGURE 2.8 CHECKING THE X–RAY TRAY

7. **CHECK THE INSTRUMENT TRAY (ACCESSORY)** in Figure 2.9 by swinging it out from under the Bassinet.

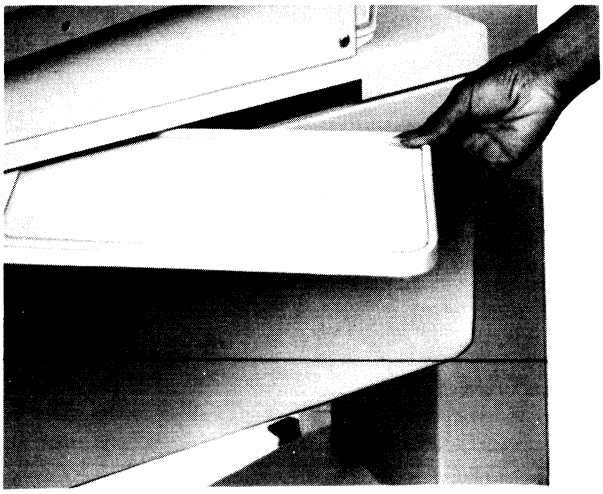


FIGURE 2.9 CHECKING THE INSTRUMENT TRAY

2.5 RESUSCITATION EQUIPMENT PRE–USE CHECKOUT/SET–UP

SUPPLY PRESSURE

1. Ensure that O_2 (and AIR) pipeline(s) are securely attached to appropriate fittings on the rear of the unit and that the gas supply present is 40 to 75 psi.

If using Reserve Gas Supply from cylinders:

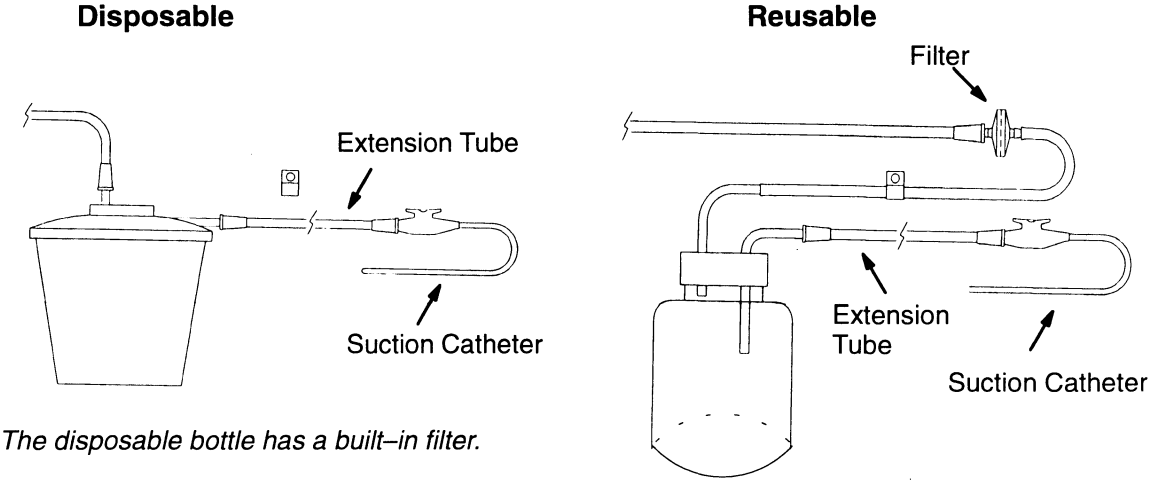
2. Ensure that cylinder(s) is(are) properly secured in the mounting yokes on the rear of the Warmer and that the cylinder valve located on the top of the cylinder is open.
3. Examine the appropriate **Cylinder Pressure Gauges** on the front of the Upper Column to ensure that a sufficient reserve gas supply is present.
4. Set the **Gas Supply On/Off Switch** to the *On* position.

BLENDED GAS SUPPLY (Optional)

1. If applicable, set the Precision Blender to the desired Oxygen % Concentration using the **Blender Control Knob**.

SUCTION

1. Check that a clean Suction Bottle (reusable or disposable, Figure 2.10) is installed and properly connected in the Resuscitation Equipment Storage Compartment at the front of the Warmer.
2. Ensure that a bacterial filter (reusable Suction Bottle) is connected in–line with the supply connection to the reusable Suction Bottle.



NOTE: *The disposable bottle has a built–in filter.*

FIGURE 2.10 CHECKING THE SUCTION BOTTLE

3. Connect the desired extension tubing to the outlet of the Suction Bottle Outlet Port and secure the free end of the extension tubing in either tubing retaining slot provided on the Front Panel of the Bassinet.
4. Turn *On* the **Suction On/Off Switch**.
5. Block the Patient Outlet of the Suction Bottle. Adjust the suction magnitude using the **Suction Min/Max Control** while viewing the suction level on the **Suction Gauge**. Adjust the suction magnitude to the desired maximum suction pressure value.
6. Turn *Off* the **Suction On/Off Switch**.
7. Connect the desired suction catheter to the distal end of the extension tubing as shown in Figure 2.10.

AUTOBREATH INFANT RESUSCITATOR/PATIENT SUPPLY (Optional)

Manual Ventilation – Use with Patient Breathing Circuit – 15 mm tubing with thumb hole (finger) at patient end (refer to Figure 3.4).

WARNING:
- **Excessive air pressure can cause damage to patient's lungs.**
- **For prolonged ventilation, use of a heat and moisture exchanger is recommended.**

There are potential hazards associated with the delivery of supplemental Oxygen. If it is necessary to administer Oxygen, the attending physician should be notified immediately.

1. Connect the Patient Circuit to the **Patient Outlet** (refer to Figure 3.4).
2. Adjust the flow rate to the desired fresh gas flow rate using the **Patient Supply Flow Rate (LPM) Control**.
3. Check the adjustable **Airway Pressure Relief Control** by setting the desired pressure limit and blocking the distal end of the Patient Circuit. Both, patient connection and thumb (finger) holes of the Exhalation Valve, must be blocked.
4. Observe the **Airway Pressure Gauge** to ensure that internal pressure limit is the desired limit.

Automatic Ventilation (Resuscitation Module with AutoBreath Infant Resuscitator Only) – Use Automatic Patient Circuit –15 mm tubing with exhalation valve and exhalation valve control line tubing.

WARNING:
- **Excessive air pressure can cause damage to patient's lungs.**
- **For prolonged ventilation, use of a heat and moisture exchanger is recommended.**
- **For unattended autoventilation, use a Patient Airway Monitor.**

There are potential hazards associated with the delivery of supplemental Oxygen. If it is necessary to administer Oxygen, the attending physician should be notified immediately.

1. Turn the AutoBreath Infant Resuscitator circuit *Off* using the **On/Off Control**.
2. Connect the Automatic Patient Circuit to the **Patient Outlet Connector** and the Exhalation Valve Control Line Tubing to the **Exh Valve Connector** (refer to Figure 3.3).
3. Adjust the flow rate to the desired fresh gas flow rate using the **Patient Supply Flow Rate (LPM) Control**.
4. Check the fixed internal **Airway Pressure Relief Control** by setting the desired Airway Pressure Limit and blocking the Exhalation Valve Exhaust Port and the Patient Port of the Exhalation Valve.
5. Observe the **Airway Pressure Gauge** to check the pressure limit.
6. Turn *On* the AutoBreath Infant Resuscitator Circuit.
7. Adjust the **Rate (BPM) Control** to 18 breaths per minute.
8. Set the **PEEP** threshold by blocking the Patient Port of the Patient Breathing Circuit. Do not block the Exhalation Valve Exhaust Port. Observe the Positive End Expiratory Pressure indicated on the **Airway Pressure Gauge** and adjust the desired PEEP using the **PEEP Control**.
9. Check the I:E ratio by measuring the Inspiratory and Expiratory Phase Times and dividing the Expiratory Phase Time by the Inspiratory Phase Time. The result should be approximately 2.0.

10. Check the desired Breath Rate by counting the number of breath cycles per minute.

AUXILIARY FLOW (provides 100% Oxygen only)

1. Connect the desired device to be supplied by the Auxiliary Flow Circuit to the **Aux Outlet Connector.**
2. Adjust the desired Auxiliary Flow using the **Aux Flow (LPM) Control** and check for flow.

SECTION 3
TECHNICAL INFORMATION

3.1 SPECIFICATIONS

The specifications for the **Resuscitaire™ Radiant Warmer** are provided in Table 3.1. All specifications are subject to change without notice.

TABLE 3.1 SPECIFICATIONS

POWER REQUIREMENTS

100V Models (Japan)	100V, 50/60 Hz, 750W
120V Models (North America)	120V, 60 Hz, 750W
120V Models (Latin America)	120V, 50/60 Hz, 750W
220/240V Models (IEC)	220/240V, 50/60 Hz, 750W
220V Models (Germany)	220V, 50 Hz, 750W

OVERLOAD PROTECTION

100V Models (Japan)	Dual 12A Circuit Breakers
120V Models (USA)	Dual 12A Circuit Breakers
120V Models (Latin America)	Dual 12A Circuit Breakers
220/240V Models (IEC)	Dual 6A Circuit Breakers
220V Models (Germany)	Dual 6A Circuit Breakers

CHASSIS LEAKAGE CURRENT

100V and 120V Models	Less than 300 µA
220V and 240V Models	Less than 500 µA

EXAMINATION LIGHT ..... >100 Foot Candles (0.18 lumens/cm^2)

ALARMS

High Temperature	Activates if Skin Temperature Probe is attached and the skin temperature sensor reaches 39.0 °C. Resets at 38.5 °C.
Check Patient	Activates in Manual Mode after 10 minutes. Remains on with audible alarm every 30 seconds for 5 minutes; totalling 15 minutes. Then the heater is turned *Off*.
Apgar Timer	Activates at the 1–, 5– and 10–minute Apgar Time intervals.
Power Fail	Activates when there is a loss of power.
Probe Fail	Activates if Skin Temperature Probe fails (open or short).
System Fail	Indicates system failure, refer unit to service immediately.
Baby Temp	Activates if Baby Temperature fluctuates 1 °C above or below set point.
Electrical Module Audio Alarms	Tone Frequency: 1.2 KHz maximum Three–stage sound level: 15 seconds low, 15 seconds medium, then high.
Blender Module Pneumatic Audio Alarm	Vibrating Reed.

TABLE 3.1 SPECIFICATIONS (CONT.)

DISPLAYS

Skin Temperature Display

Accuracy	± 0.2 °C (for 31 °C to 37 °C) ±0.4 °F (for 87.7 °F to 98.6 °F)
Resolution	0.1°C (0.5 °F)

Apgar Timer Display

Range	0 to 59 minutes, 0 to 59 seconds
Resolution	1 second
Accuracy	± 0.5 second

MANUAL HEAT CONTROL ..... Adjustable in 10% increments from zero to full power (100 %)

DATA PORT ..... 2400 Bits/second fixed Baud Rate. RS232C Compatible

MATTRESS TILT ..... 5 and 10 degrees Reverse Trendelenburg (The infant's head should be toward the front of the Warmer).

DIMENSIONS AND WEIGHT

Mattress Height	100 cm (39.4 inches)
Height	188 cm (74 inches)
Width (Side to Side)	72.4 cm (28.5 inches)
Depth (Front to Back)	111.8 cm (44 inches)
Weight	91 kg (200 lbs)

ENVIRONMENTAL

Operating Temperature Range	18 °C to 30 °C ambient
Storage Temperature Range	– 30 °C to +70 °C ambient
Relative Humidity Operating Range	5% RH to 95% RH, non–condensing

RESUSCITATION

Wall Supply Pressure ..... 40 to 75 psi

Cylinder Pressure ..... 2500 psi max

Patient Gas Supply

Flow Control Range	0 to 15 LPM
Airway Pressure Limiting Operator–Adjustable	0 to 50 cm H_2O
Factory Fixed Safety Relief Pressures	50 cm H_2O ± 8 cm H_2O

Suction Circuit

Adjustable Suction Intensity	0 to 150 mmHg

AutoBreath Infant Resuscitator Circuit (Factory Installed Option)

I/E Ratio	Fixed at 1:2 ± 20%
PEEP	0 to 18 ± 4 cm H_2O
Breath Rate	18 to 60 BPM ± 10% of setting
Adjustable Airway Pressure Relief	0 to 50 ± 5 cm H_2O
Fixed Maximum Pressure	50 cm H_2O ± 20%
Oxygen Consumption	50 lpm max.
Patient Circuit Type	Automatic

Auxiliary Flow Circuit

Auxiliary Flow Range	0 to 15 LPM
Auxiliary Pressure	40 cm H_2O ± 20% maximum

3.2 THEORY OF OPERATION

3.2.1 GENERAL

This section contains the functional description and detailed theory of operation of the equipment. A diagram of the **Resuscitaire™ Radiant Warmer** is shown in Figure 3.1.

3.2.2 OVERALL FUNCTIONAL DESCRIPTION

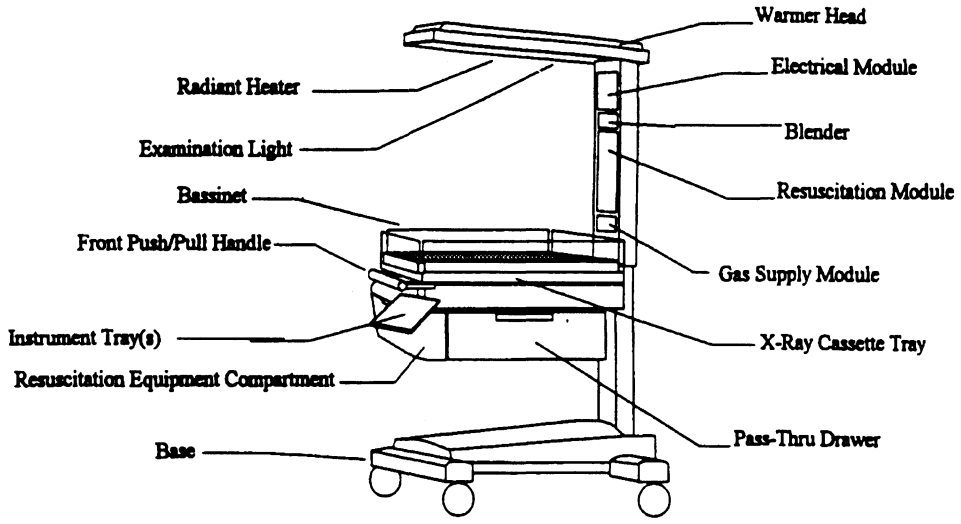


FIGURE 3.1 RESUSCITAIRE™ RADIANT WARMER

Warmer Module

The Warmer is controlled by a Controller which provides **Pre–Warm** Mode, **Manual** Mode heater control, or **Baby** Mode (automatic skin temperature control). An Examination Light provides added illumination of the mattress area. A Warmer Head Pivot permits the Warmer to be pivoted to either side for X–Ray procedures. In addition, when the Warmer is pivoted, it can be powered to provide heat.

Bassinet

The Bassinet is designed to provide maximum function and utility to aid in the care of the newborn. The side and front panels may be folded down to permit maximum access to the infant. The mattress may be tilted up in the rear at a 5 or 10 degree angle. Openings are provided on each side of the Bassinet for the insertion of the optional X–Ray Cassette Tray.

Controller

At power–up, the microprocessor within the Controller performs a series of power–up diagnostic tests to confirm the proper operation of the system. During this time, all displays and indicators are lighted and an audible tone is sounded. Also included is a Procedural Silence Timer to block out Baby Temp audible Alarms during routine procedures.

When powered up, the system initializes in the Pre–Warm Mode. In the Pre–Warm Mode, the Controller will start the heater at 100% power and maintain that setting for three minutes, reduce to 60% for 12 minutes and then reduce the heater power to 30%.

When operating the Controller in the Manual Mode, the operator can adjust the heater power from 0 to full power. After 10 minutes of operation in the Manual Mode, a Chk Patient Alarm occurs. Failure to acknowledge the Chk Patient Alarm within the next 5 minutes will cause the heater to shut down.

The Apgar Timer displays the elapsed time and sounds an audible dual tone to alert the operator that 1, 5, and 10 minutes have elapsed since the timer was activated.

When operated in the Baby Mode, the Controller utilizes a Skin Temperature Probe, connected between the Controller input and the infant, to automatically adjust the heater output of the Warmer Module to maintain a digitally displayed preset Set Temperature.

The **Keypad Lock** Key, when pressed, renders the Up/Down Arrows and Select Mode Keys inactive or active.

Also included is a Procedural Silence Timer to block out Baby Temp audible alarms during routine procedures.

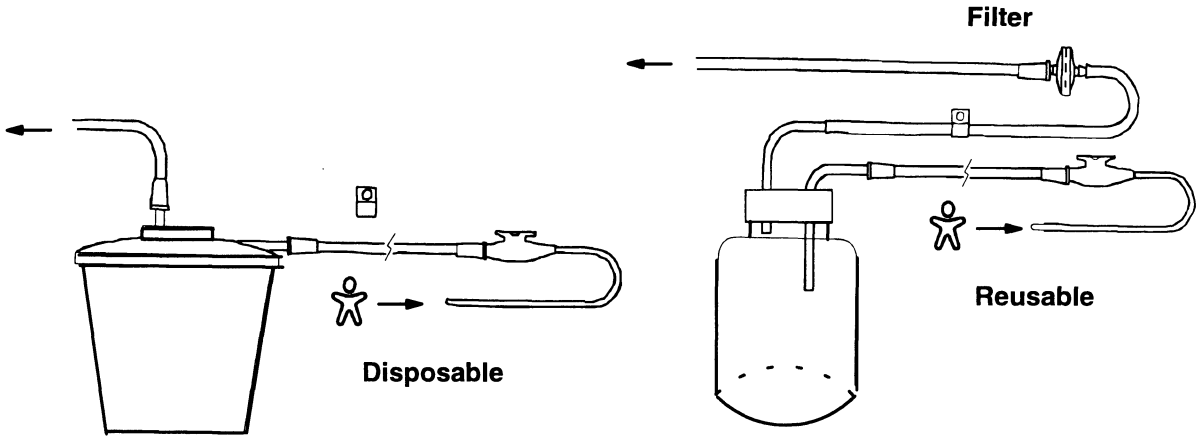
Resuscitation Module

- **Blended Gas Supply (optional)** – The Blended Gas Supply provides blended Oxygen from 21 to 100%.

The Resuscitation Module contains pneumatic circuitry necessary for infant resuscitation. Controls and displays for the module are located above and to the rear of the Bassinet.

The Resuscitation Module consists of the following components:

- **Suction** – The Suction Circuit (reusable or disposable) is driven by a gas powered venturi actuated vacuum generator which provides a negative pressure (vacuum) for suctioning the patient's airway. The suction level is indicated on the **Suction Gauge**. Suction may be adjusted using the **Suction Control**. The suction is turned *On* and *Off* using the **On/Off Switch**. A fixed internal relief valve limits the maximum suction level to –150 mmHg.

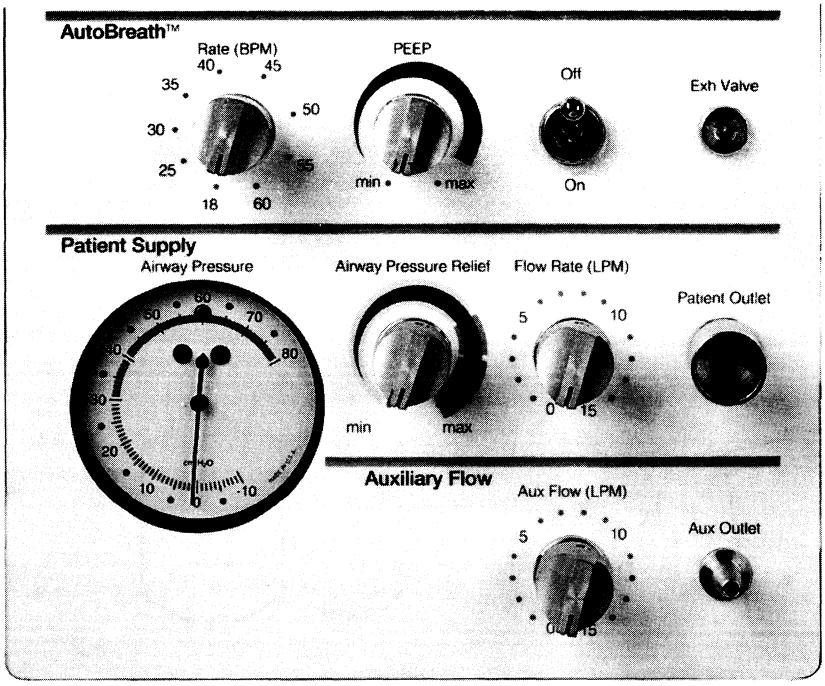


NOTE: *The disposable bottle has a built–in filter.*

FIGURE 3.2 SUCTION FUNCTIONAL BLOCK DIAGRAM

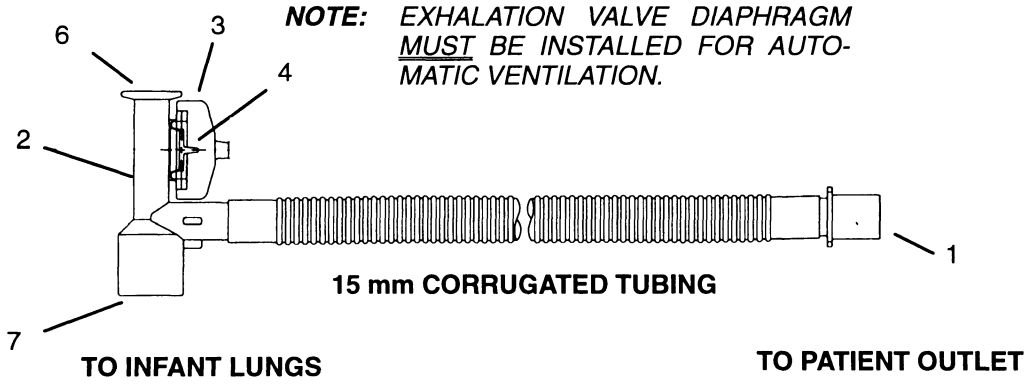
- **AutoBreath Infant Resuscitator (Factory Installed Option)** – The AutoBreath Infant Resuscitator Circuit is a gas–powered, time–cycled, continuous flow, pressure limited resuscitator. It has a **Rate (BPM) Control** and a nominal I/E ratio of 1:2. An **On/Off Switch** allows the timing circuit to be turned *On* and *Off.* A **PEEP Control** adjusts the Positive End Expiratory Pressure in the patient circuit. The resuscitator is utilized in conjunction with the continuous gas flow provided by the Patient Supply sub–module.

WARNING: An airway pressure monitor must be used if the AutoBreath Infant Resuscitator is to be used unattended.



AutoBreath Infant Resuscitator and Patient Gas Supply Controls and Indicators

1–PATIENT CIRCUIT
2–EXHALATION VALVE HOUSING
3–EXHALATION VALVE CAP
4–EXHALATION VALVE DIAPHRAGM
6–EXHAUST PORT
7–PATIENT PORT



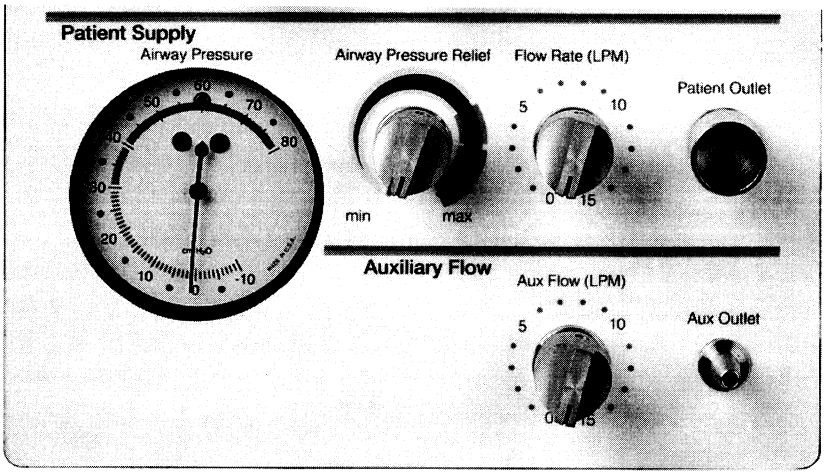
NOTE: *EXHALATION VALVE DIAPHRAGM MUST BE INSTALLED FOR AUTOMATIC VENTILATION.*

FIGURE 3.3 PATIENT BREATHING CIRCUIT FOR AUTOMATIC VENTILATION

- **Patient Gas Supply** – The Patient Gas Supply Circuit may be used with the AutoBreath Infant Resuscitator *On* or *Off* to provide continuous gas flow to the patient. Controls are provided for Airway Pressure Relief (maximum pressure) and Flow Rate (LPM) (circuit flow). The adjustable **Airway Pressure Relief Control** is always operative.

  A fixed internal safety relief valve is also provided and is also always operable. This valve provides redundant maximum pressure relief at 50 cm $H_2O \pm 8$ cm H_2O and also allows the patient to inspire room air in the event of gas supply failure.

WARNING: Breathing room air through the 2–way relief valve requires extra effort. This condition, if it occurs, should be rectified as soon as possible.



PATIENT GAS SUPPLY CONTROLS AND INDICATORS

1–PATIENT CIRCUIT
2–EXHALATION VALVE HOUSING
3–EXHALATION VALVE CAP
4–EXHALATION VALVE DIAPHRAGM
5–EXHALATION VALVE CONTROL LINE TUBING
6–EXHAUST PORT
7–PATIENT PORT

NOTE: *EXHALATION VALVE DIAPHRAGM MUST BE INSTALLED FOR MANUAL VENTILATION.*

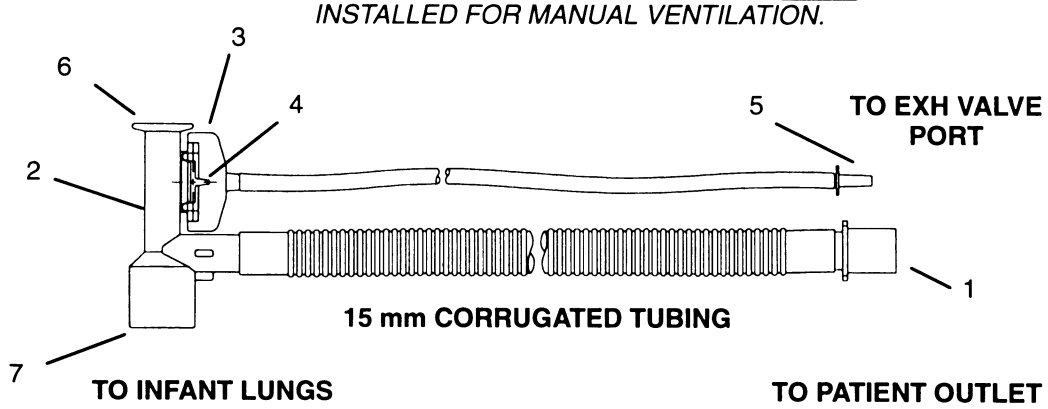


FIGURE 3.4 PATIENT BREATHING CIRCUIT FOR MANUAL VENTILATION

- **Auxiliary Flow** – The Auxiliary Flow circuit supplies 100% Oxygen to go through the **Aux Flow (LPM) Control** to the **Aux Outlet Connector.** It is intended for Oxygen enrichment of a manual bag resuscitator, for direct Oxygen delivery for the patient, the mother, or a second neonate, i.e., twins. The **Aux Flow LPM Control** adjusts the flow rate from 0 to 15 LPM. An internal pre–set relief valve limits the **Aux Outlet Connector** pressure to 40 cm H_2O.

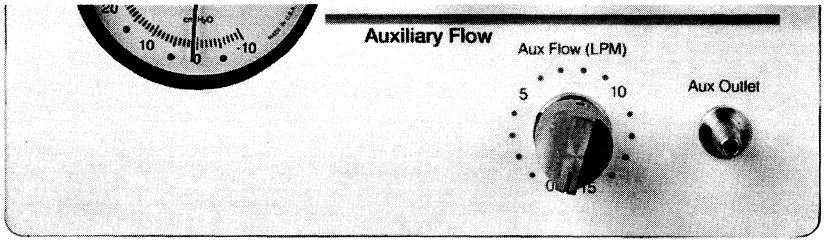


FIGURE 3.5 AUXILIARY FLOW CONTROL

- **Gas Supply** – The Gas Supply Module consists of an **Oxygen Cylinder Pressure Gauge** and/or an **Air Cylinder Pressure Gauge** and a **Gas Supply On/Off Switch** which controls the gas supply to the entire pneumatic system.

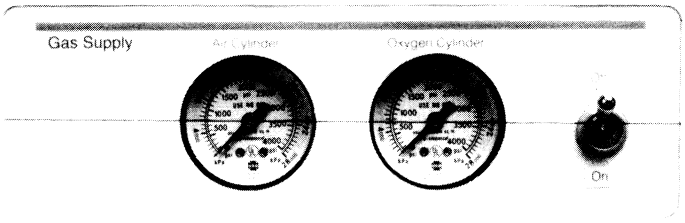


FIGURE 3.6 GAS SUPPLY

Alarms

HIGH TEMPERATURE. When the Skin Temperature Probe is attached to the infant and the skin temperature exceeds 39.0 °C, the heater is automatically turned *Off*, the **High Temp Indicator** will flash and the audible alarm will sound continuously. Press the **Silence/Reset Key** to silence the alarm for two minutes. After the alarm condition is corrected (a skin temperature of 38.5°C or less), the alarm will automatically reset.

CHECK PATIENT. When in the Manual Mode, after 10 minutes of operation, the **Chk Patient Indicator** will illuminate and the alarm will sound one time. Thereafter, the **Chk Patient Indicator** will remain illuminated and the audible alarm will sound every 30 seconds for 5 minutes. If the alarm has not been acknowledged at the end of 5 minutes, the heater will be shut down and a continuous ramping audible alarm will sound. The **Silence/Reset Key** then must be pressed to re–activate the heater.

PROBE FAIL. If the Skin Temperature Probe fails (short–circuited or open), the **Probe Fail Indicator** will flash and a ramping audible alarm will sound. After the alarm condition is corrected (the Probe is replaced), the alarm will automatically reset.

BABY TEMPERATURE. When the temperature sensed by the Skin Temperature Probe is 1 °C above or 1 °C below the selected Set Temperature Display setting, the **Baby Temp Indicator** will flash and an audible alarm will sound, first at a low level, then at a medium level, then at a high level. In addition, if the temperature is 0.2°C above the selected **Set Temperature,** the heater will be turned *Off* automatically. Press **Silence/Reset** to silence the alarm for 10 minutes.

APGAR TIMER. When the **Apgar Timer** is running, the Apgar Timer Display will show elapsed minutes and seconds and the audible alarm will sound at the 1–, 5– and 10–minute Apgar time intervals.

POWER FAIL. When power to the unit is interrupted while the Controller is *On*, the **Power Fail Indicator** will flash and the audible alarm will beep. When power is restored to the unit, the alarm will automatically reset. The alarm may be silenced by turning *Off* the Power Switch.

SYSTEM FAIL. If an internal malfunction is detected, the **System Fail Indicator** will flash and the audible alarm will beep. In addition, an Error Code (ER00 to ER025) will be displayed in the **Baby Temperature** Display (refer to Table 5.2). This alarm is not resettable. A prolonged brown–out (five minutes or more) will also cause a System Fail alarm.

BLENDER DIFFERENTIAL BYPASS ALARM. The Blender Module will alarm and bypass whenever the pressure differential between the O_2 and Air supplies exceeds 20 psi ± 2 psi . When this condition occurs, the blender will continue to supply whichever gas is at the higher pressure: either 100% Air or 100% Oxygen. This is a audible alarm only. There are no visual indicators.

3.3 DETAILED CIRCUIT DESCRIPTION

3.3.1 DISPLAY PCB1

Display PCB1 contains all of the Front Panel Switches, Display Driver and Displays. In addition, it contains the Dual Analog Probe Circuitry and an A/D Converter. There are also two precision reference power supplies: one for the adjustable 5.0 Vdc and a fixed –2.5 Vdc reference.

There are three pots on PCB1 that require adjusting; the 5.0 V precision reference potentiometer, R15, and the Dual Probe Amplifier Calibrations potentiometers, R13 (Channel 1) and R28 (Channel 2). The Probe Amplifier circuits are calibrated at 36.0 °C. Dual precision calibration resistors are provided on PCB1.

The imbedded Off–Line Diagnostic Test Software enables the user to completely test PCB1 and PCB2. The Diagnostic Test Mode is entered from the Front Panel Display during reset or start–up of the Unit. The test results are displayed on the Front Panel Displays.

3.3.2 POWER AND CONTROL PCB2

The Control PCB contains the circuitry required to control the heater as well as the operator interface. The Control PCB supports three operating modes: Pre–Warm, Manual and Baby. The enhanced Controller provides all three modes of operation, while the standard controller only provides the Pre–Warm and Manual Modes of operation.

In addition, the Control PCB contains the circuitry required to control the Remote Isolated Serial Port. The nine pin connector, located at the rear of the unit, provides the hardware interface which can be used with a standard serial printer. When a serial printer is connected to this port, the user can obtain a hard copy of error messages related to System failures.

3.3.3 POWER SUPPLY CIRCUIT

D.C. Power Supply

The D.C. Power Supply supplies ±12 Vdc, +5 Vdc and ground to PCB2, via connector J2.

Circuit Breaker

The circuit breaker, CB1, is not located on the Power and Control PCB. It is located at the rear of the Unit on the Electrical Module. The breaker has a rating of 12.0A for 100–120 Vac operation and 6.0A for 220–240 Vac operation. The circuit breaker turns the unit *On/Off* when switched by the operator. It also shuts the Unit *Off* in the presence of excessive current drain.

Fuses

The fuses, F1 and F2, are located on the Power and Control PCB. They are rated at .5A for 220–240 Vac operation and 1.0A for 100–120Vac operation.

Isolation Transformer

AC power is brought into PCB2 via connector J6 and then directly to the primaries of isolation transformer, T2.

Logic Power

The +5 Vdc Voltage is supplied via the DC Power Supply, located on the Electrical Module. It is brought into PCB2 via connector J2 and PCB1 via connector J1.

The +12 Vdc Voltage is supplied via the DC Power Supply, located on the Electrical Module. It is brought into PCB2 via connector J2 and PCB1 via connector J1.

The –12 Vdc Voltage is supplied via the DC Power Supply, located on the Electrical Module. It is brought into PCB2 via connector J2 and PCB1 via connector J1.

The +5 VREF signal is supplied via the +12 Vdc signal in conjunction with the regulator, U5, capacitors C12 and C13, resistor R10 and the fine tuning potentiometer, R15.

3.3.4 CONTROL CIRCUITRY

Microcontroller

The core processing unit of the controlling circuitry is the Motorola MC68HC11ABFN microcontroller. The microcontroller is located on PCB2.

The frequency is 8 MHz.

The internal and external address bus is 16 bits; and the internal and external data bus is 8 bits.

Display Drivers

The Display Drivers are located on PCB1: U1, U2, U3 and U10 (for the enhanced Set Temperature Mode, only).

Sound Generator

U4 is the Sound Generator IC. It is located on PCB2 and is used to generate the System alarm sounds.

A/D Converter

The external A/D converter, U4, is located on PCB1. It interfaces and is controlled directly by the serial peripheral interface of the microcontroller.

The A/C converter reads the probe channels, probe calibration and ambient temperature.

3.3.5 SYSTEM INTERFACES

Baby (Skin) Temperature Probe

The Baby Temperature Probe signals are brought to PCB2 via connector J3. The signals SK1 and SK2 are brought to PCB1 via connector J1 and converted to a digital signal via the A/D Converter, U4.

Ambient Temperature Probe

The Ambient Temperature Probe signal, PROBEC, is brought to PCB1 via connector J1 and converted to a digital signal via the A/D Converter, U4.

Data Port

The Data Port signals are brought to PCB2 via connector J5. The signals present at this port are electrically isolated from the remaining circuitry via Isolation Transformer, T1.

This Data Port will support two data protocols: bi–directional and a printer interface protocol. The factory default is the printer interface protocol.

The Baud Rate is also selectable between 2400 and 4800 bits/sec. The factory default is 2400 bits/sec.

3.3.6 SYSTEM FAIL LOGIC

The System Fail Logic produces a System Failure Alarm when the following conditions occur: high baby temperature detected, microcontroller system failure detected by the watchdog timer or a system failure is detected which prevents proper operation of the system (e.g., heater failure).

The System Fail Alarm is not self–resetting.

The Watchdog Timer Circuitry resides on PCB2.

3.3.7 POWER FAIL LOGIC

The Power Fail Logic produces a Power Fail Alarm when the following conditions occur: loss of ac mains supply, emergency ac mains switch *Off* or power cord disconnection. If ac power fails, the alarm is powered by capacitor, C29.

The Power Fail Alarm is self–resetting with the resumption of power.

The Power Fail Circuitry resides on PCB2.

3.3.8 PNEUMATIC SYSTEM

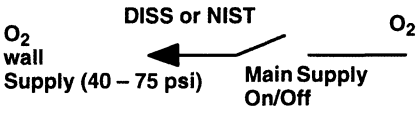
The Pneumatic System consists of three modules (Gas Supply, Resuscitation and Blender), a patient breathing circuit, and a suction collection bottle.

The Gas Supply Module connects the pipeline and/or cylinder supplied gas to the Pneumatic System. The Resuscitation Module contains the suction, Oxygen delivery, and an optional ventilator circuitry. An optional Precision Blender Module mixes the Oxygen and Air concentration levels. The Patient Breathing Circuit completes the system by connecting the Resuscitation Module to the patient.

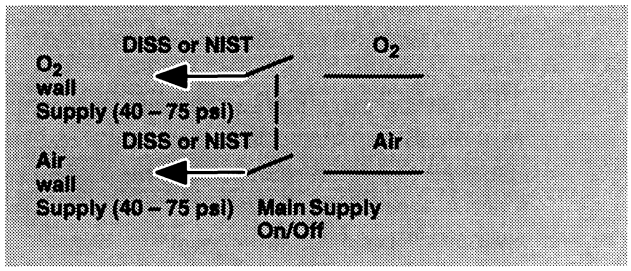
GAS SUPPLY MODULE

The Gas Supply Module consists of four basic variants which share common components. The four basic variants are as follows: 1) O_2 Pipeline (No Reserve Supply), 2) O_2 Pipeline (With Reserve Supply), 3) O_2/Air Pipeline (No Reserve Supply) and 4) O_2/Air Pipeline (With Reserve Supply).

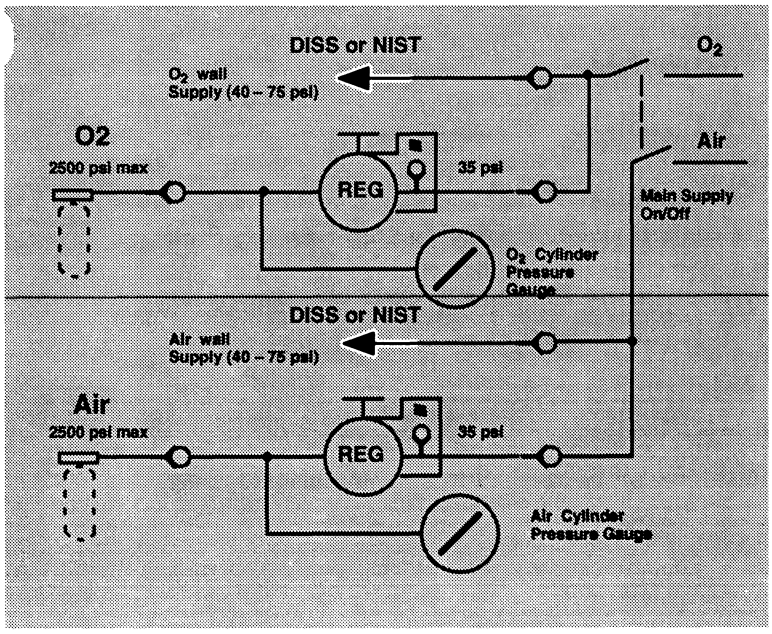
O_2 Pipeline, No Reserve Supply (Standard Configuration)



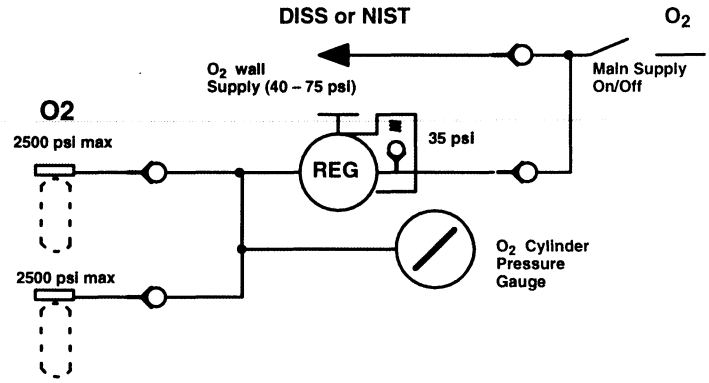
O_2/Air Pipeline, No Reserve Supply



O_2/Air Pipeline, With Reserve Supply



O_2 Pipeline, With Reserve Supply



Main Switch

The Main Switch is a toggle actuated *On/Off* valve which enables the user to turn *On/Off* all supply gases with a single control.

Reserve Gas Supply Switch–Over

Modules containing reserve gas supplies for cylinders contain pressure regulators preset to 35 psi. Check-valves provide a wired–"OR" type , automatic switch–over from pipeline gas to reserve gas supply when pipeline supply pressure drops below 35 psi.

Cylinder Pressure Gauges

Each reserve gas circuit contains a pressure gauge which enables the user to monitor the cylinder pressure.

RESUSCITATION MODULE

The Resuscitation Module is an integrated package that contains several pneumatic circuits which control suction, Oxygen delivery and ventilation.

The Module uses flow control valves to control many of the module parameters: Suction Control, PEEP, Airway Pressure Relief, Flow Rate and Aux Rate. The flow controls are calibrated by the vendor. The knob, on the shaft of the flow control, is intentionally set so that when the flow is adjusted to its minimum flow position, there is a small bleed flow through the valve. This prevents the valve seat from being damaged and the flow characteristics from changing.

CAUTION: If the knob is removed, the unit must be recalibrated.

Patient Gas Supply

The Patient Gas Supply provides 0 to 15 lpm of O_2 or when the Blender Module is included in the System, a mixture of O_2 and Air. The flow control is a calibrated dial type flow adjustment. The **Adjustable Airway Pressure Control** consists of a flow control valve which controls the gas flow through a pressure divider. This controls the pressure applied to a diaphragm which occludes a seat in the pressure relief valve assembly. By varying this pressure, the Airway Pressure Relief threshold can be adjusted.

Auxiliary Supply

The Auxiliary Gas Supply provides from 0 to 15 lpm of 100% Oxygen (with a factory set internal safety relief valve at 50 cm $H_2O \pm 8$ cm H_2O).

Airway Pressure Gauge

The Airway Pressure Gauge is used to Monitor the patient's airway pressure. The connection port of this gauge can be connected to either a patient circuit using the Patient Gas Supply or Auxiliary Supply circuits.

Suction

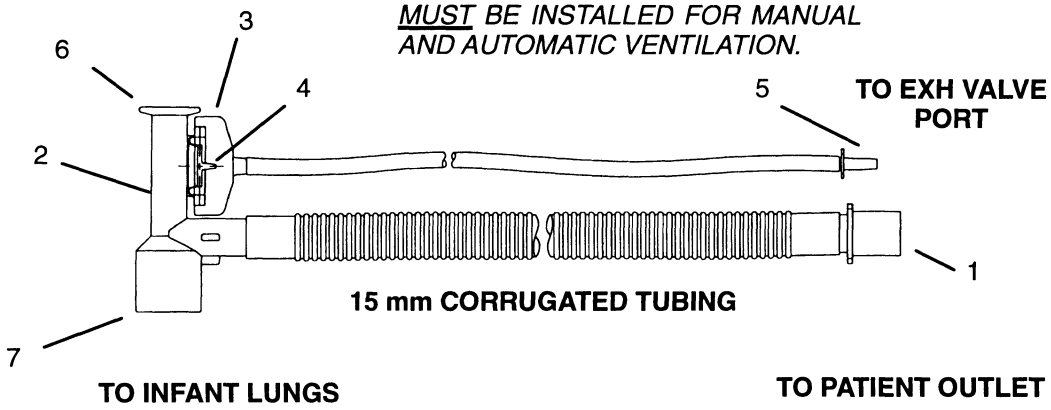
The Suction circuit uses a venturi to generate from 0 to 150 mmHg suction at 5 lpm nominal flow. The suction gauge displays the generated suction magnitude. This value varies with the flow supplied to the venturi assembly and the resistance in the suction supply and patient connection circuits.

AutoBreath Infant Resuscitator (optional)

The AutoBreath Infant Resuscitator circuit is a basic gas–powered, time cycled, continuous flow, pressure limited resuscitator. The AutoBreath Infant Resuscitator circuit, used in combination with the Patient Breathing Circuit, provides automatic continuous flow ventilation. The automatic ventilation is driven by a pneumatic oscillator which pressurizes and bleeds the exhalation chamber of the exhalation valve. The diaphragm in this chamber controls patient inspiration and expiration. The frequency of the oscillator is controlled by the Breath Rate flow control valve which is user adjustable from 18 to 60 BPM (Breaths Per Minute).

1–PATIENT CIRCUIT
2–EXHALATION VALVE HOUSING
3–EXHALATION VALVE CAP
4–EXHALATION VALVE DIAPHRAGM
5–EXHALATION VALVE CONTROL LINE TUBING (REQUIRED FOR AUTOMATIC VENTILATION ONLY)
6–EXHAUST PORT
7–PATIENT PORT

NOTE: *EXHALATION VALVE DIAPHRAGM MUST BE INSTALLED FOR MANUAL AND AUTOMATIC VENTILATION.*



BLENDER MODULE (Optional)

The low flow, precision blender supplies 0 to 15 lpm of an Air–Oxygen mixture, ranging from 100% Air (21% O_2) to 100% O_2 (0% Air) with blender inlet pressures of 35 to 75 psig (for both Oxygen and Air), a nominal pressure drop of less than 3 psi (at 50 psig inlet pressure and 10 lpm flow rate) and a bleed to atmosphere of 3 lpm.

The Blender will alarm and bypass whenever the pressure differential between the O_2 and Air supplies exceeds 20 psi ± 2 psi. When this condition occurs, the blender will continue to supply whichever gas is at the higher pressure: either 100% air or 100% O_2.

3.3.9 WARMER HEAD

The Warmer Head contains the quartz heating element and an examination light. It is mounted to the top of the Upper Column. The Warmer Head pivots to either side of the Warmer to provide access for a portable X–Ray machine. There is no latch required to move the Warmer Head. An applied force of approximately 10 pounds is all that is required to overcome the detents of the warmer head pivot.

HEATING ELEMENT

The Radiant Heater consists of a 600 watt quartz tube heater.

EXAMINATION LIGHT

The Examination Light is mounted underneath the Warmer Head. It is located on the centerline of the Warmer Head directly behind the radiant heating element. The Examination light is a 40 Watt fixed–focus halogen bulb and is turned *On/Off* by a key on the front of the Electrical Module.

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SECTION 4
PREVENTIVE MAINTENANCE

4.1 GENERAL

This Section provides cleaning and maintenance instructions.

WARNING:

If Oxygen is in use, make sure that the Oxygen supply to the equipment is turned *Off* and that it is disconnected from the Oxygen supply when performing cleaning and maintenance procedures. A fire and explosion hazard exists when performing cleaning and/or maintenance procedures in an Oxygen–enriched environment.

An electrical shock hazard exists when performing cleaning and maintenance procedures; make sure that the Power Cord is disconnected from the wall receptacle.

4.2 MAINTENANCE

OPERATIONAL CHECKOUT

Before each use, the **Resuscitaire™ Radiant Warmer** should be checked for proper operation. If the **Resuscitaire Radiant Warmer** is found to malfunction, it should not be used. Refer to the Operational Checkout Procedure provided in Section 2.

4.3 CLEANING

When an infant is discharged, or at least once a week, the equipment should be thoroughly disinfected. Cleaning can most effectively be accomplished by disassembling, then grouping the parts and/or assemblies in categories according to the method of cleaning required.

4.3.1 DISASSEMBLY FOR CLEANING

1. Remove both Bassinet Side Panels (Figure 4.1) by pulling them straight up.

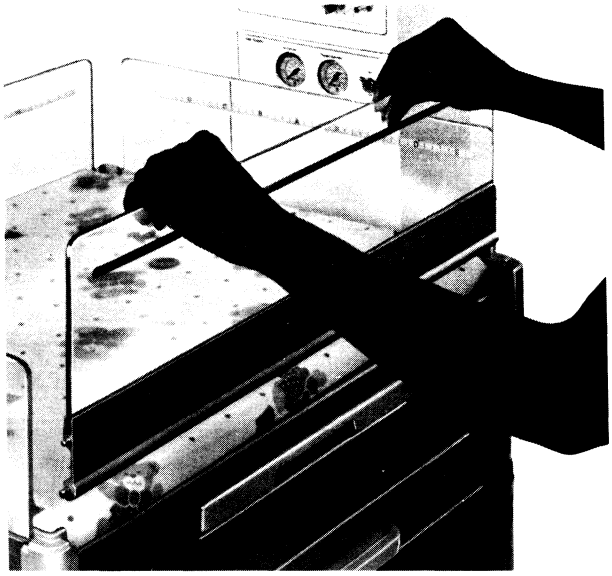

FIGURE 4.1 REMOVING BASSINET SIDE PANELS

2. Remove the Bassinet Back Panel (Figure 4.2) by raising it straight up until the bottom pins are adjacent to the slots in the corner brackets.

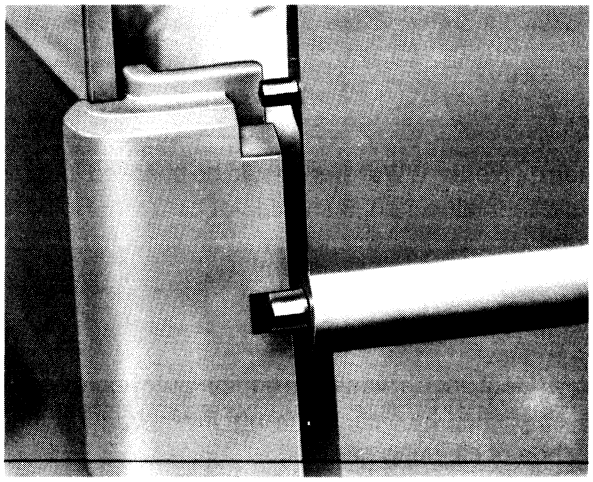

FIGURE 4.2 REMOVING BASSINET BACK PANEL

3. Remove the Bassinet Front Panel (Figure 4.3) by raising it and then swiveling it down. On the bottom of the panel press on the release tabs (Figure 4.4) and pull the panel straight out.

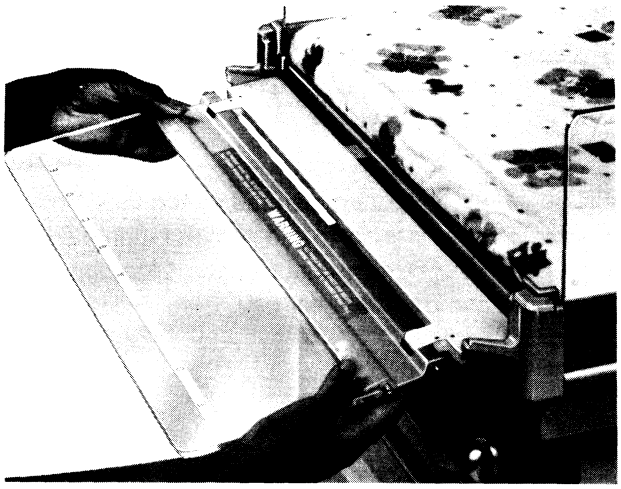

FIGURE 4.3 REMOVING BASSINET FRONT PANEL

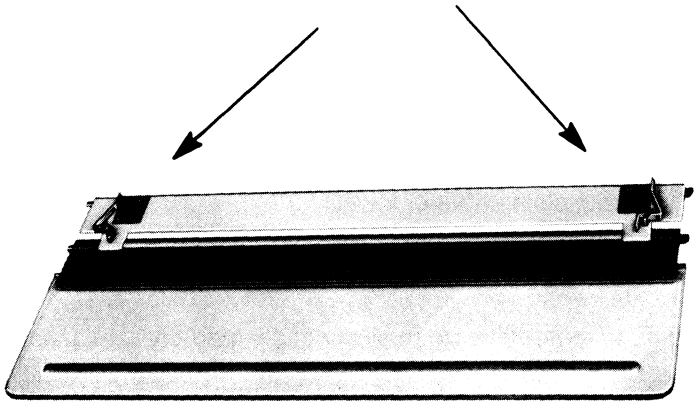

FIGURE 4.4 BASSINET FRONT PANEL RELEASE TABS

4. Remove the Mattress from the Bassinet.
5. Remove the X–Ray Tray.
6. Remove the Suction Bottle and Filter from the front of the Bassinet.

4.3.2 CLEANING PROCEDURES

When an infant is discharged, or at least once a week, the equipment should be thoroughly cleaned and disinfected.

CLEANING AGENTS

An iodophor or quaternary disinfectant–detergent registered by the U.S. Environmental Protection Agency should be used, but only when the equipment is not in use and disassembled as described elsewhere in this section. A cleanser such as Kleenaseptic® Germicidal Surface Cleanser may be used. When using any cleaning agent, follow the manufacturer's directions for use. Before cleaning, remove all solid wastes and contaminants from the disassembled parts.

PAINTED SURFACES

Use a disinfectant–detergent to clean all surfaces thoroughly, then dry with a clean cloth or paper towel.

CLEAR PLASTIC AND ACRYLIC SURFACES

CAUTION:

- **Alcohol can cause crazing of plastic and acrylic. Do not use alcohol, acetone, or any organic solvents for cleaning.**
- **Do not expose plastic and acrylic to direct radiation from germicidal lamps. Ultraviolet radiation from these sources can cause cracking and crazing of clear plastic and acrylic.**

Use a disinfectant–detergent to clean all surfaces thoroughly. Make sure to clean all holes, indentations, baffles, etc.; then dry with a clean cloth or paper towel.

METAL SURFACES

Use a disinfectant–detergent to thoroughly clean all surfaces; then dry with a clean cloth or paper towel.

IMPORTANT: *After cleaning, a complete operational checkout should be performed before returning the unit to service.*

SKIN TEMPERATURE PROBE, REUSABLE

CAUTION: Do not pull on the tip of the skin temperature probe when cleaning or drying; damage to the probe may result.

Use a disinfectant–detergent to thoroughly clean all surfaces, then dry with a clean soft cloth or paper towel.

4.4 STERILIZATION

CAUTION: DO NOT STEAM AUTOCLAVE. Gas sterilization temperature should not exceed 54.4 °C (130 °F).

Sterilization can be accomplished with the following:

A. COLD STERILIZATION

CAUTION: Do not expose plastic and acrylic to direct radiation from germicidal lamps. Ultraviolet radiation from these sources can cause cracking of gasket surfaces, fading of paint, and ultimately, crazing of plastic and acrylic.

B. GAS STERILIZATION (ETHYLENE OXIDE). Prior to gas sterilization, the entire unit should be thoroughly cleaned as described elsewhere in this section. Remove and discard all used disposable elements. New disposable elements should be installed after sterilization.

Standard gas sterilization procedures, as programmed by automatic equipment such as made by American Sterilizers and Wilmot Castle, are satisfactory as these do not normally exceed 54.4 °C (130 °F).

IMPORTANT: *After sterilization, a complete functional checkout procedure should be performed before returning the unit to service.*

4.5 REASSEMBLY AFTER CLEANING

1. Replace the Mattress on the Bassinet.
2. Replace the X–Ray Tray.
3. Replace the Bassinet Back Panel by inserting the pins in the Corner Brackets.
4. Replace the Bassinet Side Panels by pushing them straight down into their slots.
5. Replace the Bassinet Front Panel by sliding it into the Front of the Bassinet until the release tabs catch. Raise the Panel into position.
6. Install a new Suction Filter. Replace the Suction Bottle.

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SECTION 5
SERVICE

5.1 GENERAL

This section provides the following service information for the **Resuscitaire™ Radiant Warmer**: 1) DC Power Requirements, 2) Leakage Current Test, 3) Heater Head Electrical Requirements, 4) Pneumatic System Checkout, 5) Troubleshooting Guidelines and 6) Removal and Replacement Procedures.

5.2 CALIBRATION

PRECISION 5–VOLT REFERENCE ADJUSTMENT

Equipment Required

- DVM (Fluke 8080A or equivalent)
- Small Screwdriver (or Trim Pot Adjustment Tool)

Procedure (refer to Paragraph 5.7)

1. Perform Off–Line Diagnostic Test #12.
2. Place the leads of the DVM across pins 11 (Gnd) and pin 37 (Voltage Out) of connector J1.
3. Adjust the precision 5V reference resistor R15, on the Display Board, until the value on the DVM reads 5V ± 10 mV.

SKIN PROBE 1 TEMPERATURE SENSOR ADJUSTMENT

Equipment Required

- Small Screwdriver (or Trim Pot Adjustment Tool)

Procedure (refer to Paragraph 5.7)

1. Perform Off–Line Diagnostic Test #12.
2. On the Control Board, adjust R13 of the Channel 1 temperature sensor circuit until the value displayed on the Baby Mode Temperature Display reads 36.00 °C.

SKIN PROBE 2 TEMPERATURE SENSOR ADJUSTMENT

Equipment Required

- Small Screwdriver (or Trim Pot Adjustment Tool)

Procedure (refer to Paragraph 5.6)

1. Perform Off–Line Diagnostic Test #12.
2. On the Control Board, adjust R28 of the Channel 2 temperature sensor circuit until the value displayed on the Apgar Timer Display reads 36.00 °C.

HEATER VOLTAGE SENSE ADJUSTMENT

Equipment Required

- DVM (Fluke 8080A or equivalent)
- Small Screwdriver (or Trim Pot Adjustment Tool)

Procedure (refer to Paragraph 5.7)

1. Perform Off–Line Diagnostic Test #6.
2. Use a Digital Voltmeter (DVM) to measure the Input AC Line Voltage on the Control Board.
3. Adjust R9 until the value on the DVM is equal to the measured Value on the Baby Temperature Display.

5.3 DC POWER REQUIREMENTS

Equipment Required

- DVM (Fluke 8080A or equivalent)

At the specified ac input voltage, verify the following dc voltages on the Controller Board. Refer to Figure 7.2.

DC OUTPUT VOLTAGE	CONNECTOR,PIN
+5.2 ± .075 V	J2–2 or J2–3
+12 V ± 1.5 V	J2–1
–12V ± 1.5 V	J2–6
GND	J2–4

5.4 LEAKAGE CURRENT TEST

Equipment Required

- Leakage Tester

TEST SET–UP

1. Connect the Controller to the primary power source through an ungrounded adapter plug so that the unit is ungrounded. Turn the power switch *On*.
2. The leakage current test standards, provided in the test procedures below, assume leakage through a resistance of 1000 Ohms. If the Leakage Tester being used does not provide this resistance, the test set–up must be adjusted to provide it.
3. Perform the above steps (1 and 2) with the Controller power switch *Off*.

TEST PROCEDURES

1. Use the Leakage Current Tester to measure between the chassis of the unit under test and a known ground such as the ground connection of a wall receptacle. The leakage current must not exceed 300 uA for 100/120 Vac Units or 500 uA for 220/240 Vac Units.
2. Reverse the plug and repeat the previous step.

5.5 HEATER HEAD ELECTRICAL REQUIREMENTS

Equipment Required

- DVM
- Leakage Current Detector

1. Verify that the heater installed matches the Assembly Name Plate Data:

	HEATER VOLTAGE	HEATER COLD RESISTANCE
100 Volt Unit	100 Volt Heater	12.83 to 14.83
120 Volt Unit	120 Volt Heater	19.16 to 21.18
220–240 Volt Unit	220 Volt Heater	62.73 to 68.61

2. At the specified ac input voltage, verify that the heater illuminates.
3. Verify that the ac leakage current is ≤ 40 uA.

5.6 PNEUMATIC SYSTEM CHECKOUT

Equipment Required

- Flowmeter
- O_2 Analyzer
- Airway Pressure Monitor
- Suction Gauge

5.6.1 SYSTEM OVERVIEW

1. Perform a visual inspection of the System (checking for marks, scratches, etc.).
2. Make sure that all of the Control Knobs turn smoothly.
3. Make sure that all of the gauges read zero when the System is *Off.*
4. Remove the Back Cover and inspect for the following:
   a) loose tubes
   b) pinched tubes
   c) improper seating of Modules

5.6.2 SYSTEM LEAKAGE TEST

With the following conditions met, make sure that the drop in System pressure is less than 2 psi in 30 seconds:

- the Gas Supply Switch turned *On* and the System pressurized with Oxygen between 35 psi and 75 psi; then the Gas Supply Switch turned *Off.*
- the Patient and Auxiliary Outlets blocked.

5.6.3 GAS SUPPLY MAIN ON/OFF SWITCH TEST

Make sure that the Gas Supply Switch turns the System supply completely *On* and *Off.*

5.6.4 BLENDER MODULE TEST (only if applicable)

Slowly adjust the O_2 and Air pressure for the following condition and observe the Pressure Differential Alarm.
$|O_2$ Inlet Pressure – Air Inlet Pressure$| \geq$ 20 psi ± 2 psi.

NOTE: *When the Pressure Differential Alarm occurs, the Blender will continue to supply whichever gas is at the higher pressure: that is, either 100% Air or 100% Oxygen.*

5.6.5 RESUSCITATION MODULE TESTS

PATIENT GAS SUPPLY (with the Gas Supply Switch turned *On*)

Flow (using an external Flowmeter)

- verify that the Flow Rate is adjustable between 0 and 15 lpm.
- verify that the flow accuracy is ± 3% full scale or ± 10% of setting (whichever is greater).

O_2 Concentration (using an O_2 Analyzer)

NOTE: *This test is for Systems equipped with a Blender Module.*

- verify that the O_2 Concentration Level on the Blender is 60% ± 3% , when the Blender Control is set to 60%, the inlet gases are within 10 psi and the individual gas pressures are between 30 and 75 psi.
- verify that the output mixture range of the Blender Module is adjustable, with the Blender Control between 20.8% O_2 to 100% O_2.

Pressure Relief

- verify that the Airway Pressure Gauge reads 50 cm H_2O ± 8 cm H_2O when the Airway Pressure Relief Control is set to maximum and the Flow Rate is set to 5 lpm.

AUXILIARY SUPPLY (with the Gas Supply Switch turned *On*)

Flow (using an external Flowmeter)

- verify that the Aux Flow is adjustable between 0 and 15 lpm.

Pressure Relief

- verify that the Airway Pressure Gauge reads 50 cm H_2O ± 8 cm H_2O when the Aux Outlet is occluded and the Flow Rate is set to 5 lpm.

AIRWAY PRESSURE GAUGE (using an Airway Pressure Monitor)

- adjust the Airway Pressure Gauge to read 0 at zero pressure.
- adjust the Airway Pressure Gauge to read 50 cm H_2O ± 2.4 cm H_2O at 50 cm H_2O applied pressure.

SUCTION

Pressure Relief

- verify that the Suction Gauge reads –150 mmHg ± 15 mmHg when the Suction Control is set to maximum and the suction output is occluded.

Supply Switch

- verify that the Suction Switch turns the suction completely *Off* and completely *On.*

Suction Gauge Accuracy (using an external Suction Gauge)

- verify that with the suction level adjusted to 150 mmHg the reading on the external gauge is 150 ± 6 mmHg.

AUTOBREATH INFANT RESUSCITATOR OPTIONAL

I/E Phase Ratio Range

- verify audibly, for all combinations of PEEP and Breath Rate settings, that the Inspiration/Exhalation (I/E) ratio is approximately 1:2.

Flow Accuracy (using an external flowmeter)

- verify that the flow, with PEEP set to minimum is ±10% of the setting.

Frequency Range

- verify that the frequency range is adjustable, with the Breath Rate Control between 18 and 60 BPM (Breaths Per Minute).

5.7 ELECTRICAL MODULE OFF–LINE DIAGNOSTICS

5.7.1 OFF–LINE DIAGNOSTIC TESTS

The Off–Line Diagnostic Tests are embedded in the software. When the Diagnostic Mode has been invoked, the user can sequence through a series of 17 tests, using the ↑ and ↓ keys, and view the results on the Front Panel.

NOTE: *The number corresponding to the active diagnostic test will always appear on the Set Temperature Display, with the exception of Test #3.*

The individual test functions are described in Paragraphs 5.7.2 thru 5.7.18.

ENTRY

To access the Off–Line Diagnostic Mode, turn the ac power *On* and simultaneously depress the ↑ and ↓ keys.

NOTE: *Both keys must be held until the initial phase of the self–test is complete.*

When the Diagnostic Mode is successfully accessed, the front panel LED's will change to a special default pattern (refer to Figure 5.1). Once this pattern appears, release the ↑ and ↓ keys for the remaining phases of the self–test.

When all phases of the self–test are complete, '1' will appear in the Set Temperature display, indicating to the user that the first test is active.

EXIT

The Off–Line Diagnostic mode can only be terminated by turning *Off* and then *On* (power cycling) the **Resuscitaire™ Radiant Warmer**.

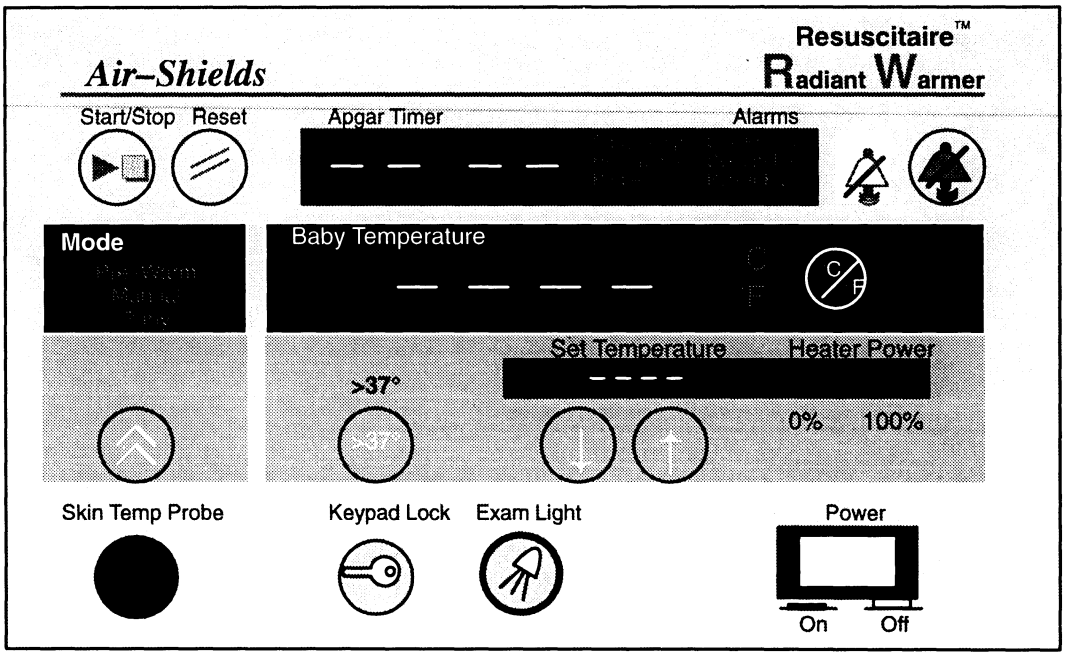
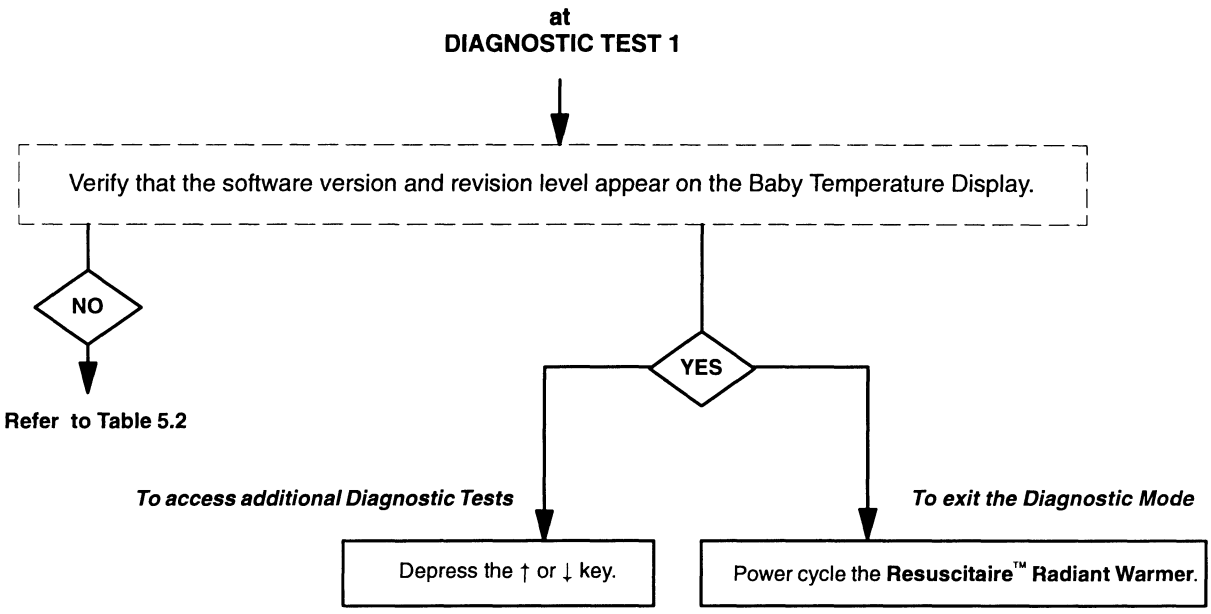


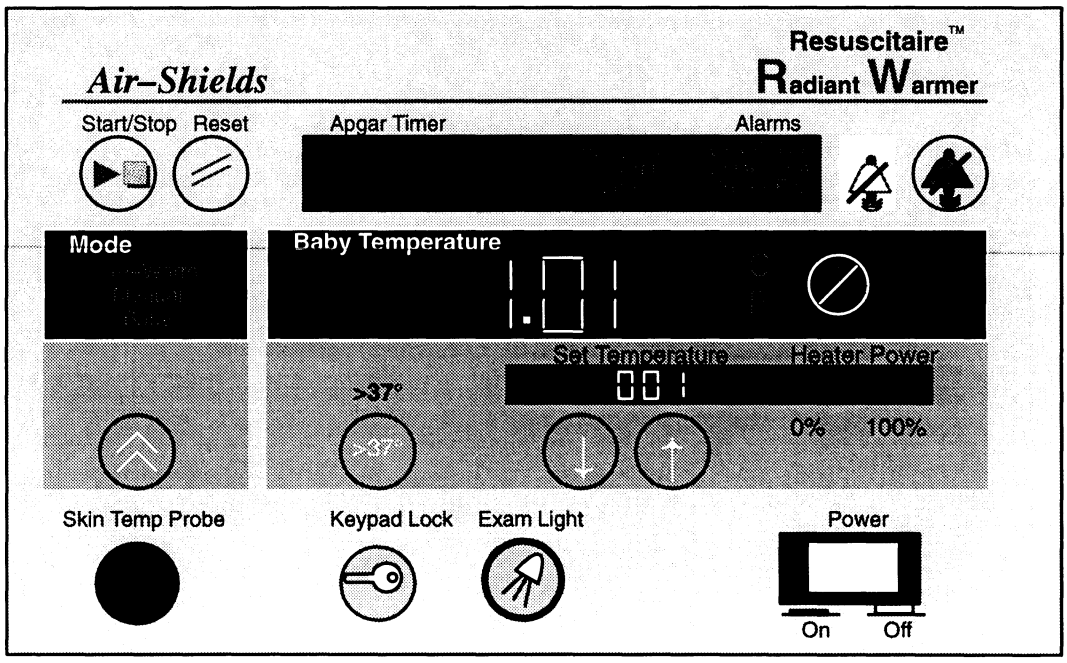
FIGURE 5.1 DIAGNOSTIC MODE START–UP DISPLAY

5.7.2 DIAGNOSTIC TEST 1 – Software Level Display

This test displays the version and revision level of the **Resuscitaire™ Radiant Warmer** software.

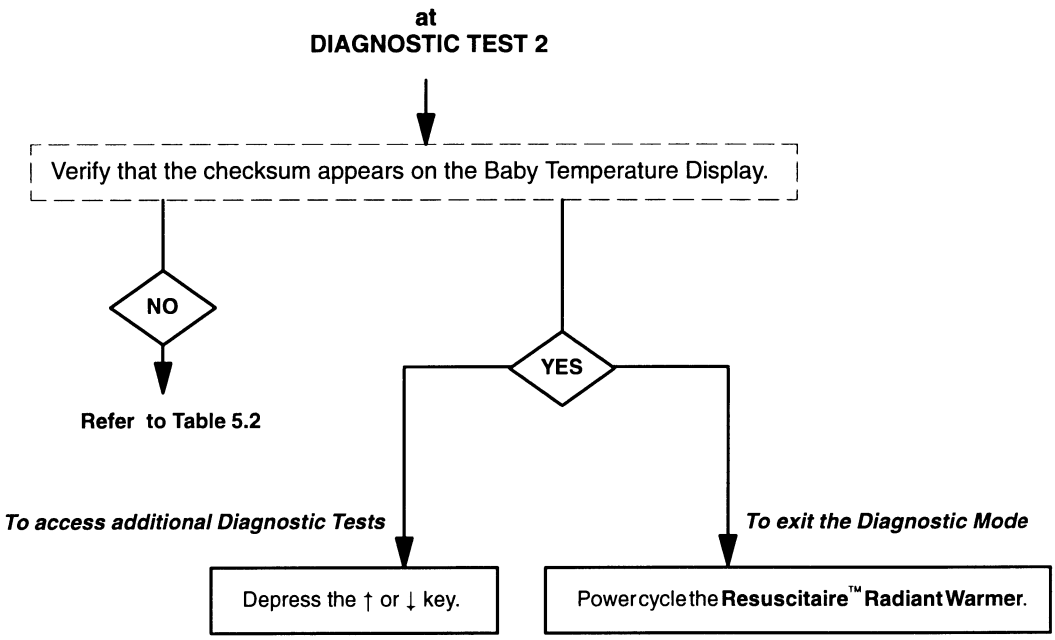

at
DIAGNOSTIC TEST 1
Verify that the software version and revision level appear on the Baby Temperature Display.
NO
Refer to Table 5.2
YES
To access additional Diagnostic Tests
Depress the ↑ or ↓ key.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

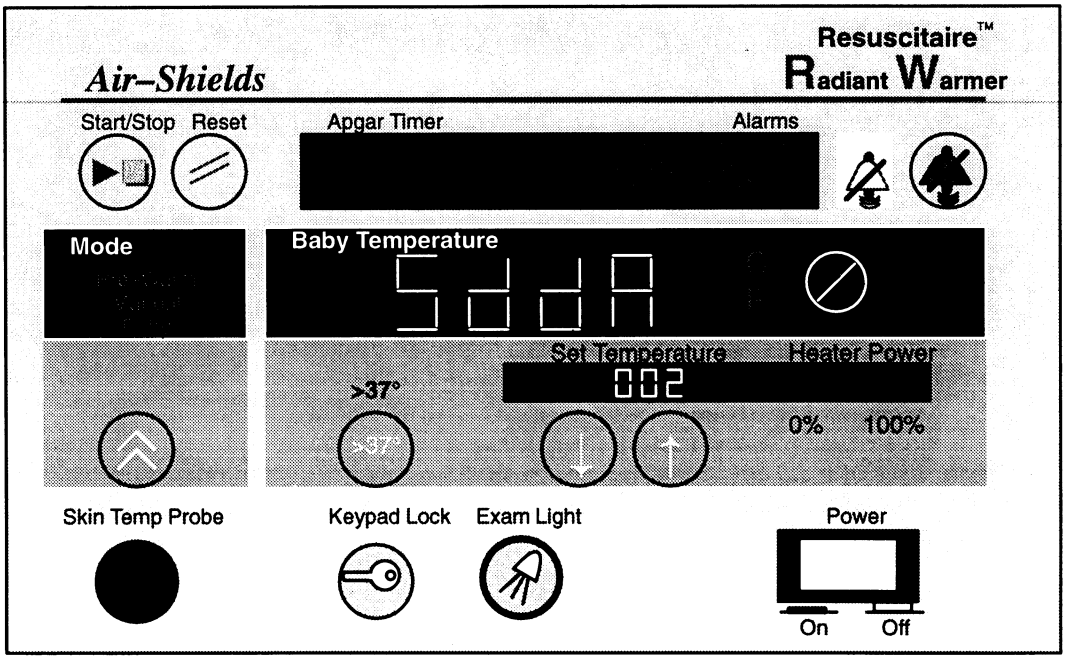


5.7.3 DIAGNOSTIC TEST 2 – ROM Device Checksum Display

This test displays the ROM Device Checksum. The checksum is shown as a hexidecimal number on the Baby Temperature Display. It is identical with the four digits reported by the DATA I/O programmer during a verify or copy operation and is also printed on the ROM label.

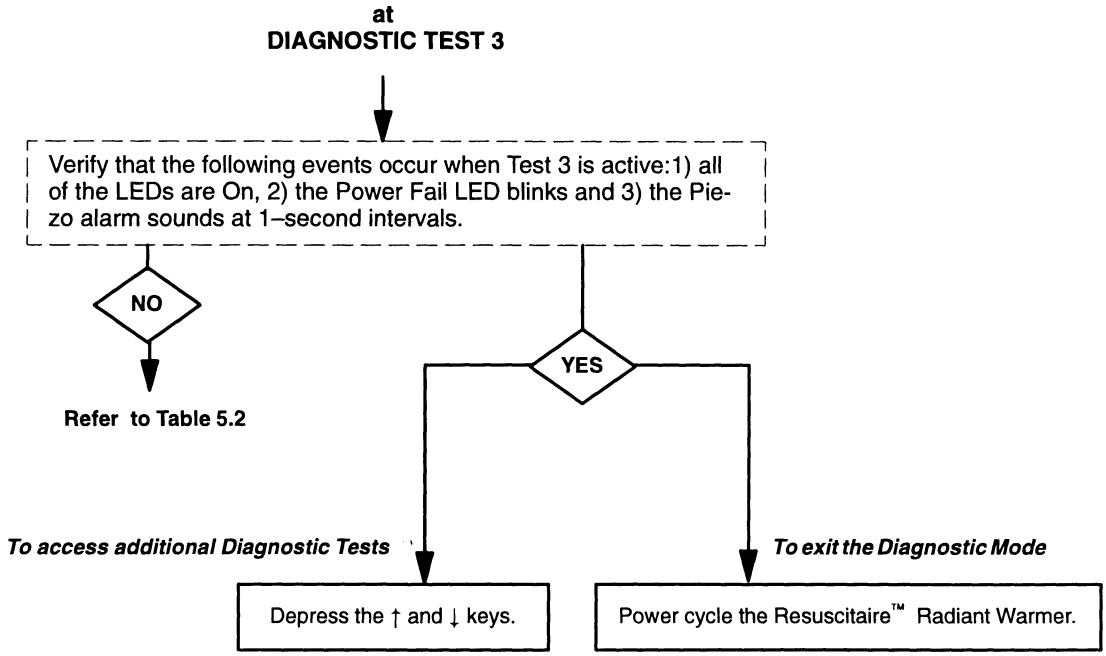

at
DIAGNOSTIC TEST 2
Verify that the checksum appears on the Baby Temperature Display.
NO
Refer to Table 5.2
YES
To access additional Diagnostic Tests
Depress the ↑ or ↓ key.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.

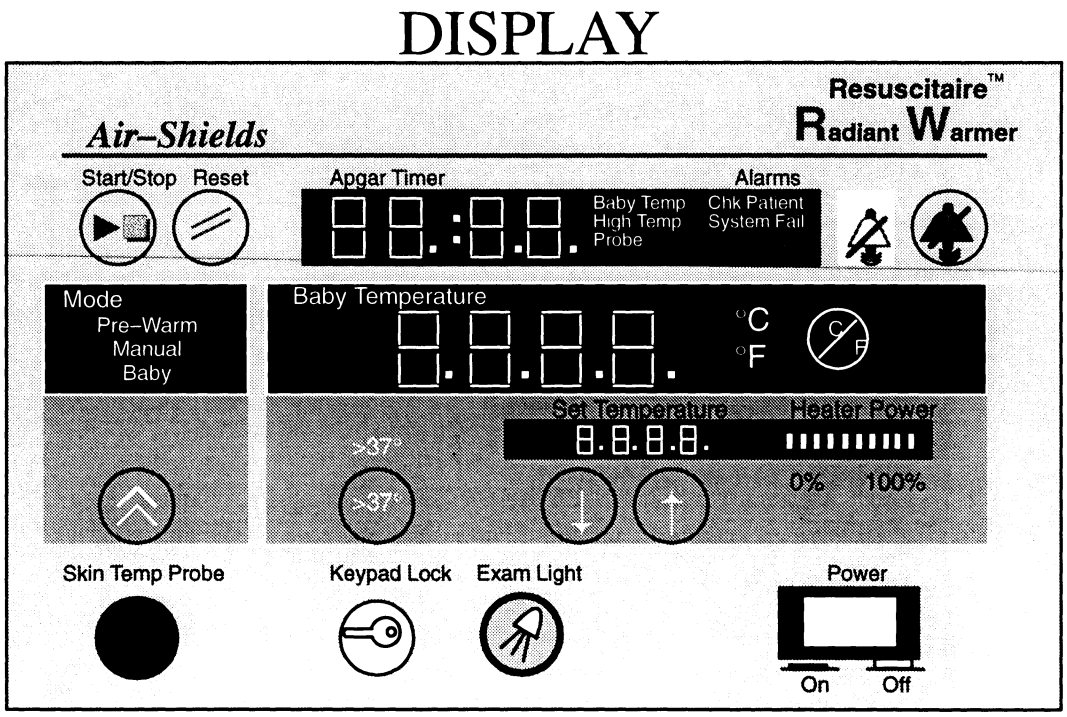
DISPLAY



5.7.4 DIAGNOSTIC TEST 3 – Power Fail Test

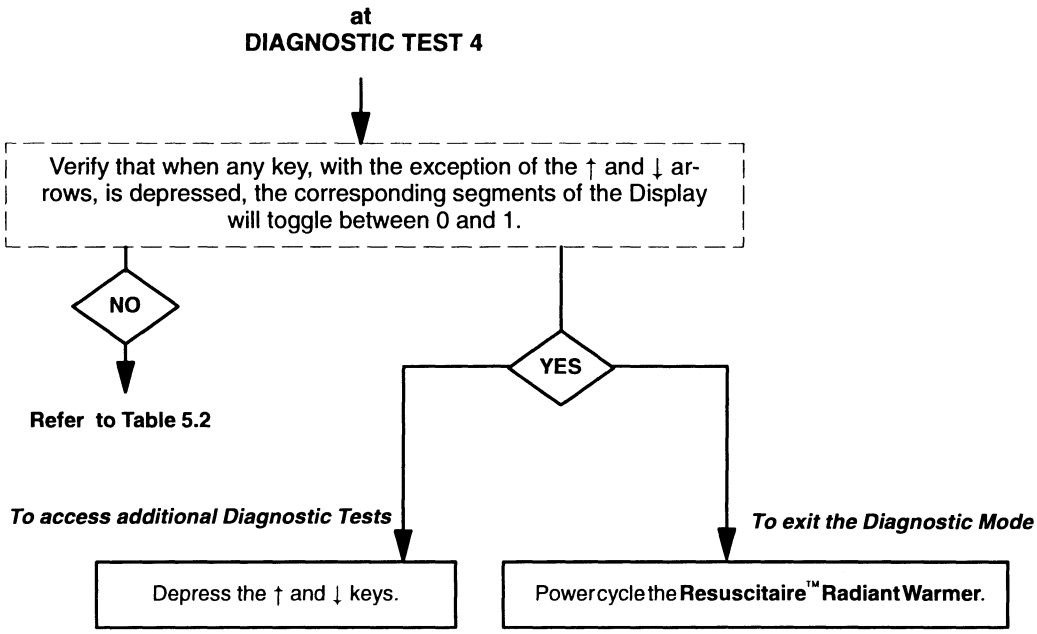
This test verifies the operation of the Power Fail Circuit. When this test is activated, all of the LEDs are *On* and the Power Fail LED blinks. The Piezo alarm sounds at 1–second intervals.

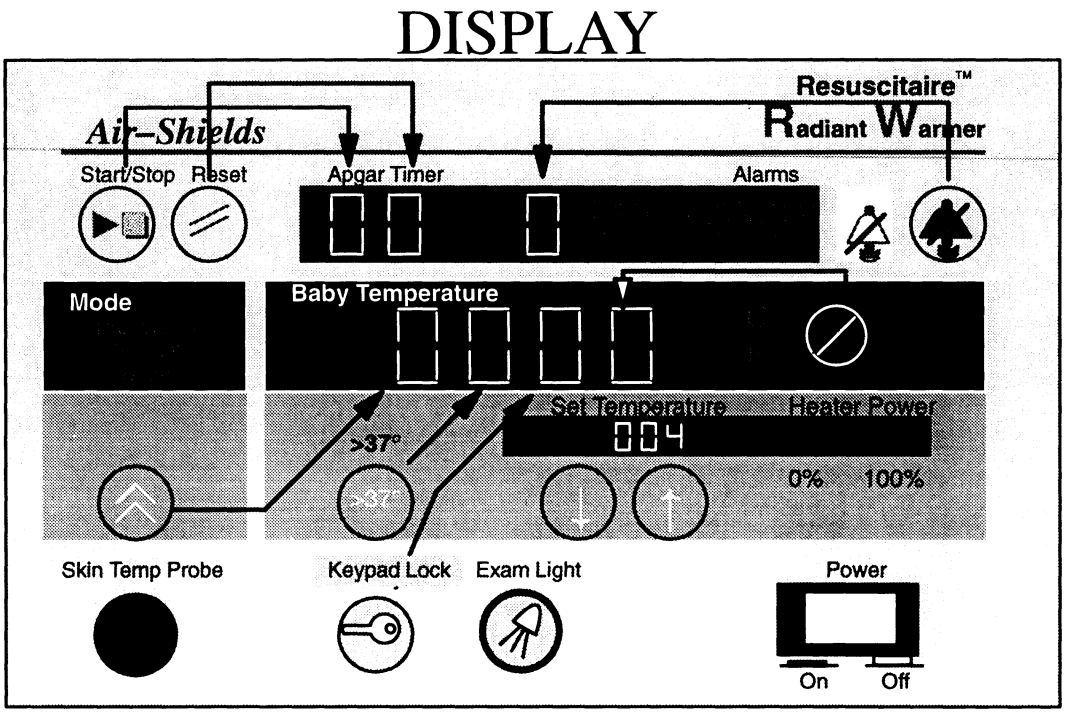

at
DIAGNOSTIC TEST 3
Verify that the following events occur when Test 3 is active:1) all of the LEDs are On, 2) the Power Fail LED blinks and 3) the Piezo alarm sounds at 1–second intervals.
NO
Refer to Table 5.2
YES
To access additional Diagnostic Tests
Depress the ↑ and ↓ keys.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.



5.7.5 DIAGNOSTIC TEST 4 – Key Check

This test checks for keypad failures. In order to prove the operation of the keys, a total of seven zeros *(0)* will be shown in the APGAR and BABY TEMP Displays. Pressing any of the keys on the Front Panel will momentarily cause the nearest *0* to change to a *1*.


at
DIAGNOSTIC TEST 4
Verify that when any key, with the exception of the ↑ and ↓ arrows, is depressed, the corresponding segments of the Display will toggle between 0 and 1.
NO
YES
Refer to Table 5.2
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ and ↓ keys.
Power cycle the Resuscitaire™ Radiant Warmer.



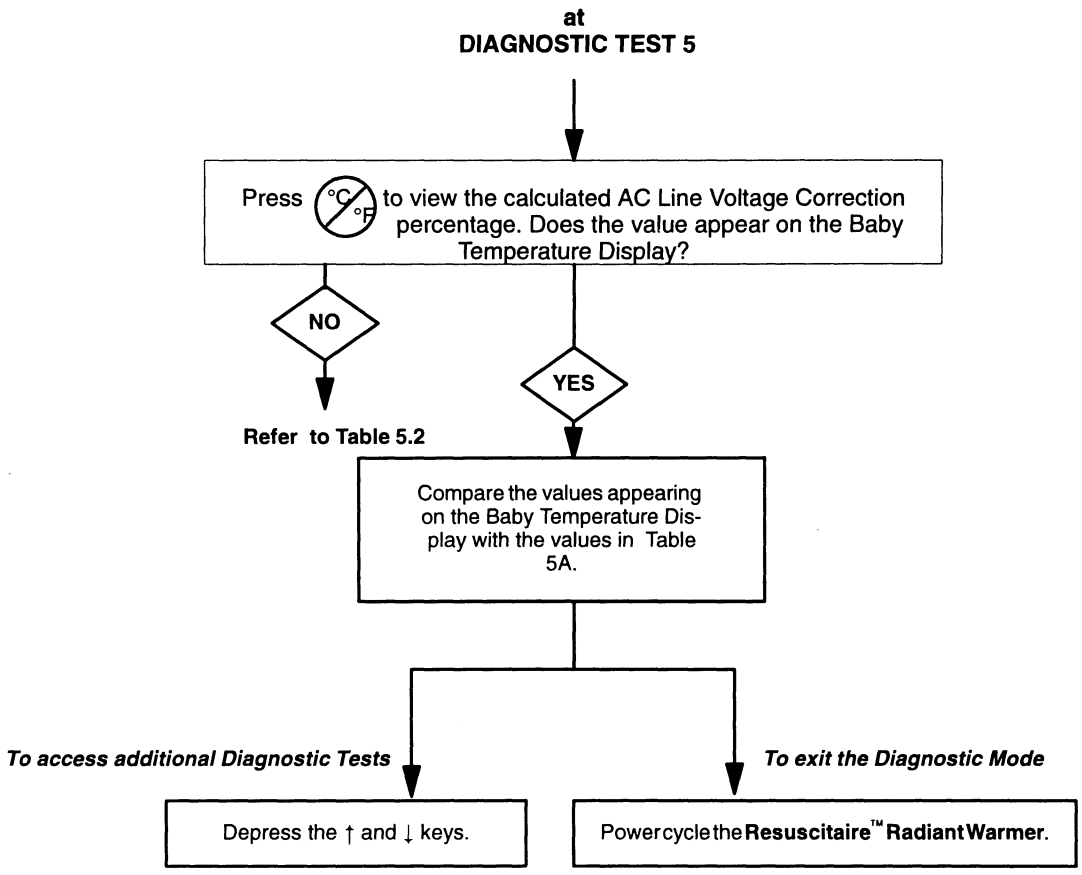
5.7.6 DIAGNOSTIC TEST 5 – Heater Duty Cycle Test

This test displays the current ac heater duty cycle percentage applied to achieve 600 Watts of power in the three power ranges listed below:

90 Vac to 110 Vac
100 Vac to 135 Vac
190 Vac to 235 Vac

After pressing °C/°F, the AC Line Voltage Correction percentage will appear on the Baby Temperature Display. These values are listed in Table 5.A.

NOTE: *In order to verify the AC Line Voltage, perform Diagnostic Test 6 prior to performing this test.*


at
DIAGNOSTIC TEST 5
Press °C/°F to view the calculated AC Line Voltage Correction percentage. Does the value appear on the Baby Temperature Display?
NO
YES
Refer to Table 5.2
Compare the values appearing on the Baby Temperature Display with the values in Table 5A.
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ and ↓ keys.
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

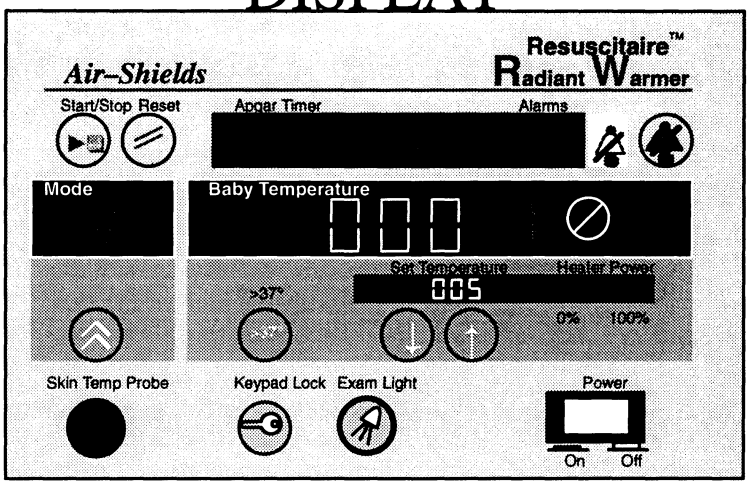
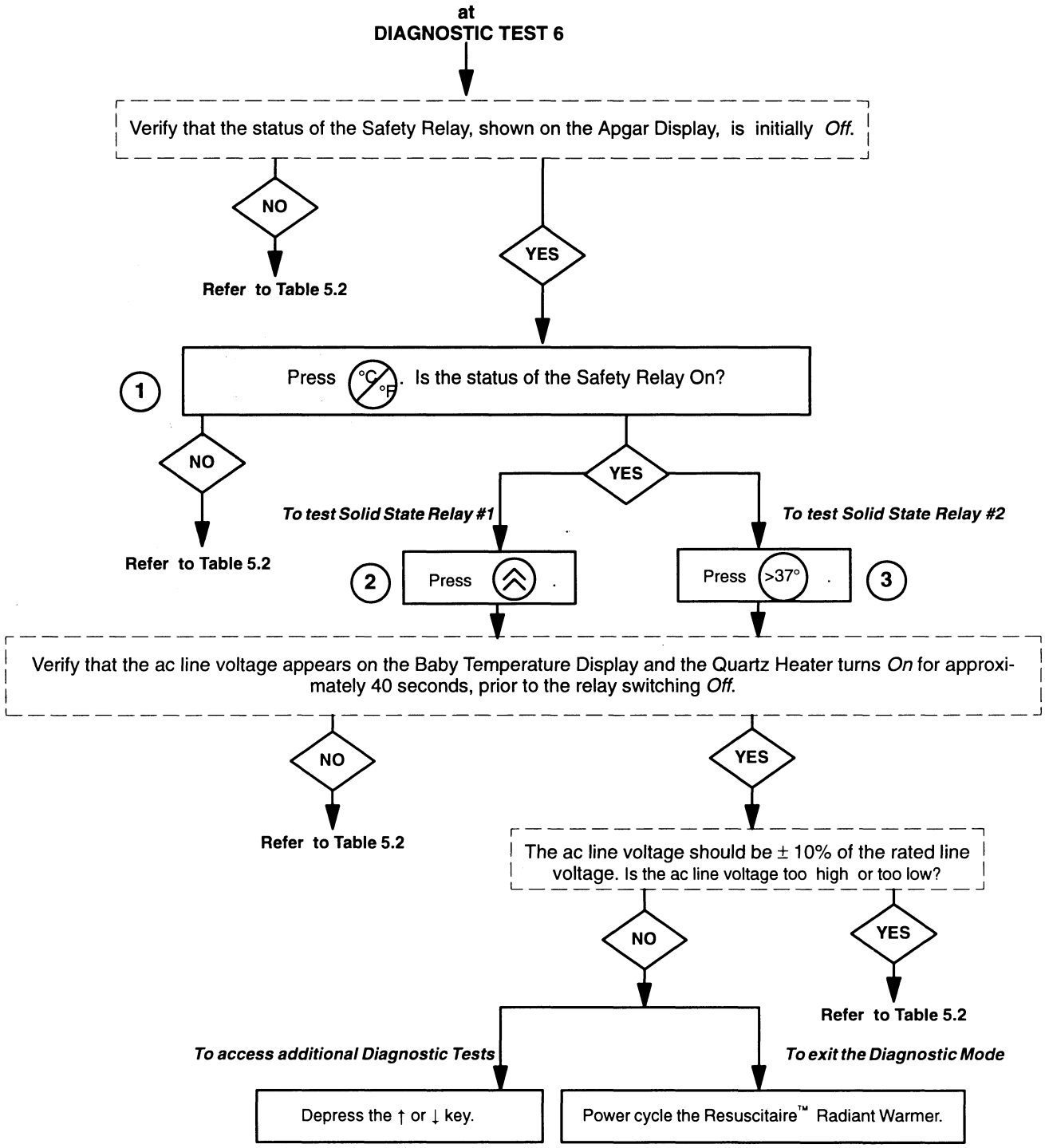


TABLE 5.A AC LINE VOLTAGE CORRECTION PERCENTAGES

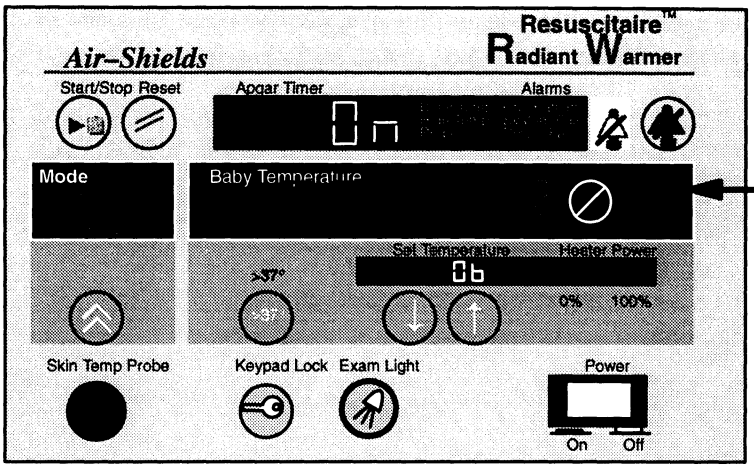
Corr %	AC Line Voltage	Corr %	AC Line Voltage	Corr %	AC Line Voltage	Corr %	AC Line Voltage
67	110	66	135	56	264	75	228
68	109	67	134	57	263	76	227
69	108	68	133	57	262	77	226
71	107	69	132	58	261	77	225
72	106	71	131	58	260	78	224
73	105	72	130	58	259	79	223
75	104	73	129	59	258	80	222
76	103	74	128	59	257	80	221
78	102	75	127	60	256	81	220
79	101	76	126	60	255	82	219
81	100	77	125	61	254	82	218
83	99	79	124	61	253	83	217
84	98	80	123	62	252	84	216
86	97	81	122	62	251	85	215
88	96	83	121	63	250	86	214
90	95	84	120	63	249	86	213
92	94	85	119	64	248	87	212
94	93	87	118	64	247	88	211
96	92	88	117	65	246	89	210
98	91	90	116	65	245	90	209
100	90	91	115	66	244	91	208
		93	114	66	243	91	207
		95	113	67	242	92	206
		96	112	67	241	93	205
		98	111	68	240	94	204
		100	110	69	239	95	203
		100	109	69	238	96	202
		100	108	70	237	97	201
		100	107	70	236	98	200
		100	105	71	235	99	199
		100		72	234	100	198
				72	233		
				73	232		
				73	231		
				74	230		
				75	229		

5.7.7 DIAGNOSTIC TEST 6 – AC Line Voltage Display

This test displays the AC Line Voltage read through Solid State Relay #1 (K4) and Solid State Relay #2 (K3). The Mean Line Voltage is shown on the Baby Temp Display. The status of the Safety Relay (K1) is shown on the Apgar Display.

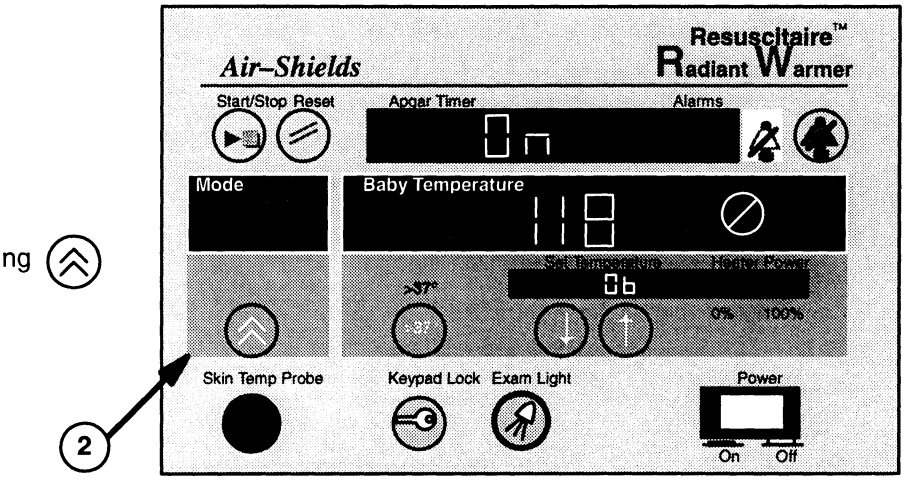

at
DIAGNOSTIC TEST 6
Verify that the status of the Safety Relay, shown on the Apgar Display, is initially Off.
NO
Refer to Table 5.2
YES
1
Press °C/°F. Is the status of the Safety Relay On?
NO
Refer to Table 5.2
YES
To test Solid State Relay #1
To test Solid State Relay #2
2
Press ⌃⌃
Press >37°
3
Verify that the ac line voltage appears on the Baby Temperature Display and the Quartz Heater turns On for approximately 40 seconds, prior to the relay switching Off.
NO
Refer to Table 5.2
YES
The ac line voltage should be ± 10% of the rated line voltage. Is the ac line voltage too high or too low?
NO
YES
Refer to Table 5.2
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ or ↓ key.
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

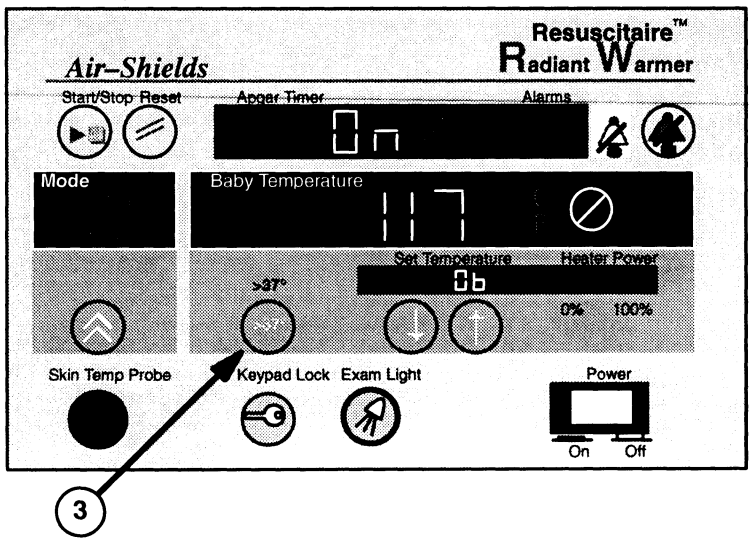


1 after pressing

after pressing



2



3

after pressing >37°

5.7.8 DIAGNOSTIC TEST 7 – EEPROM Status Test

This test displays a four bit hexadecimal number which indicates the status of the EEPROM. The status flag is shown on the Baby Temperature Display. Under normal conditions, the status flag will be "001," indicating that the logic is functioning properly. On occasion, however, the status flag "008" will appear, indicating the initialization of a new EEPROM device or a 'write failure recovery.' A description of the known status flags is given in Table 5.B.

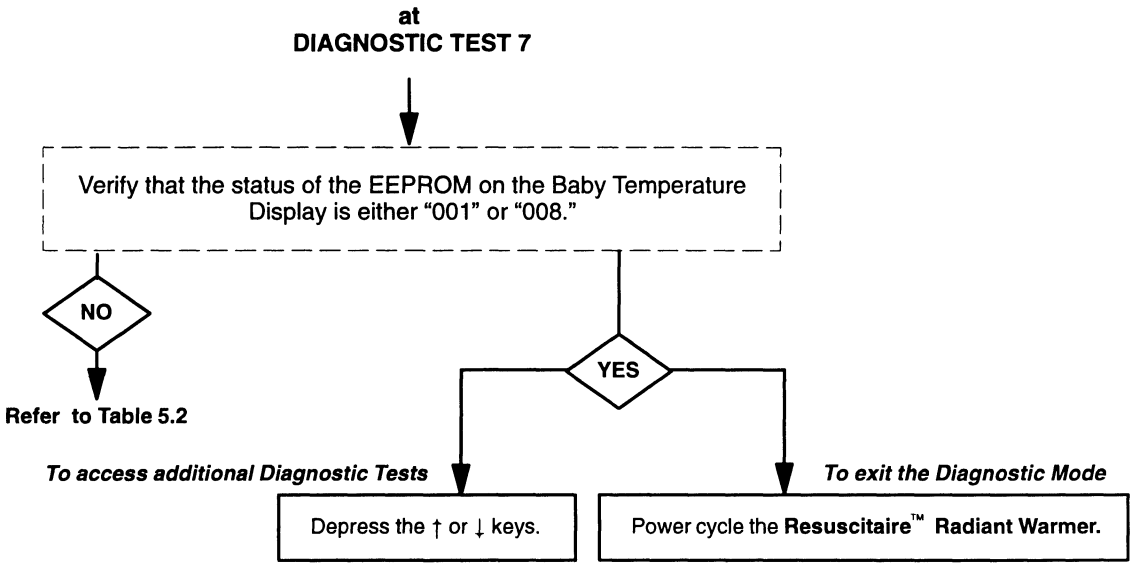
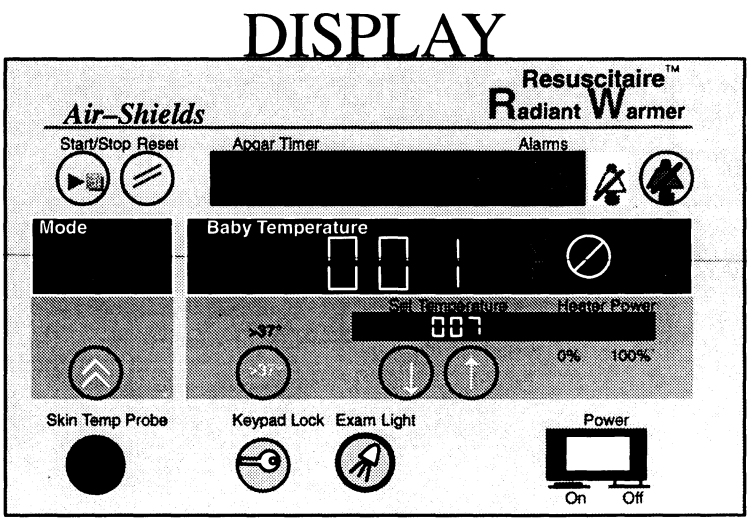

at
DIAGNOSTIC TEST 7
Verify that the status of the EEPROM on the Baby Temperature Display is either "001" or "008."
NO
Refer to Table 5.2
YES
To access additional Diagnostic Tests
Depress the ↑ or ↓ keys.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.

TABLE 5.B Status Flags

Status Flag	Definition
000	EEPROM data block was never initialized
001	A valid EEPROM data block was found at init
002	Multiple EEPROM blocks were found at init
004	An unrecoverable EEPROM write failure occurred
008	A bulk erase operation was performed



5.7.9 DIAGNOSTIC TEST 8 – Unit Configuration Display

This test displays the unit configuration as read from jumpers (JP5 and JP6) on the Controller Board.

NOTE: *Jumpers JP5 and JP6 may be changed during this test to verify the system's accuracy in determining the unit configuration.*

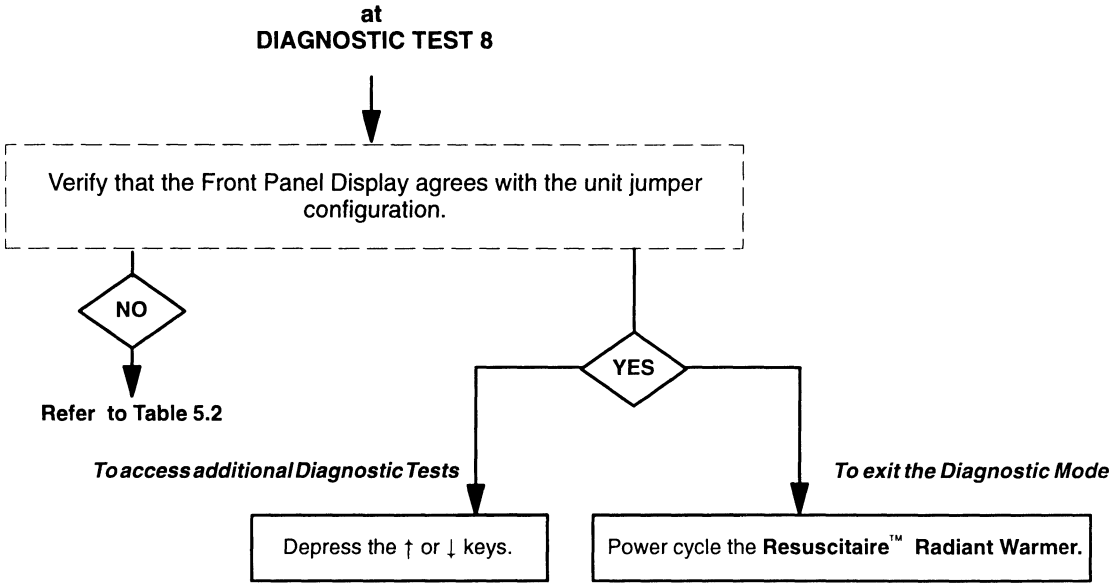
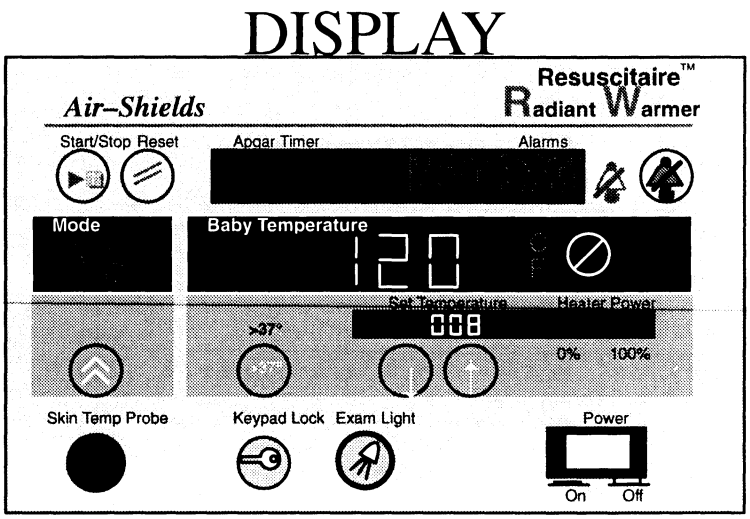

at
DIAGNOSTIC TEST 8
Verify that the Front Panel Display agrees with the unit jumper configuration.
NO
Refer to Table 5.2
YES
To access additional Diagnostic Tests
Depress the ↑ or ↓ keys.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.

TABLE 5.C UNIT CONFIGURATION

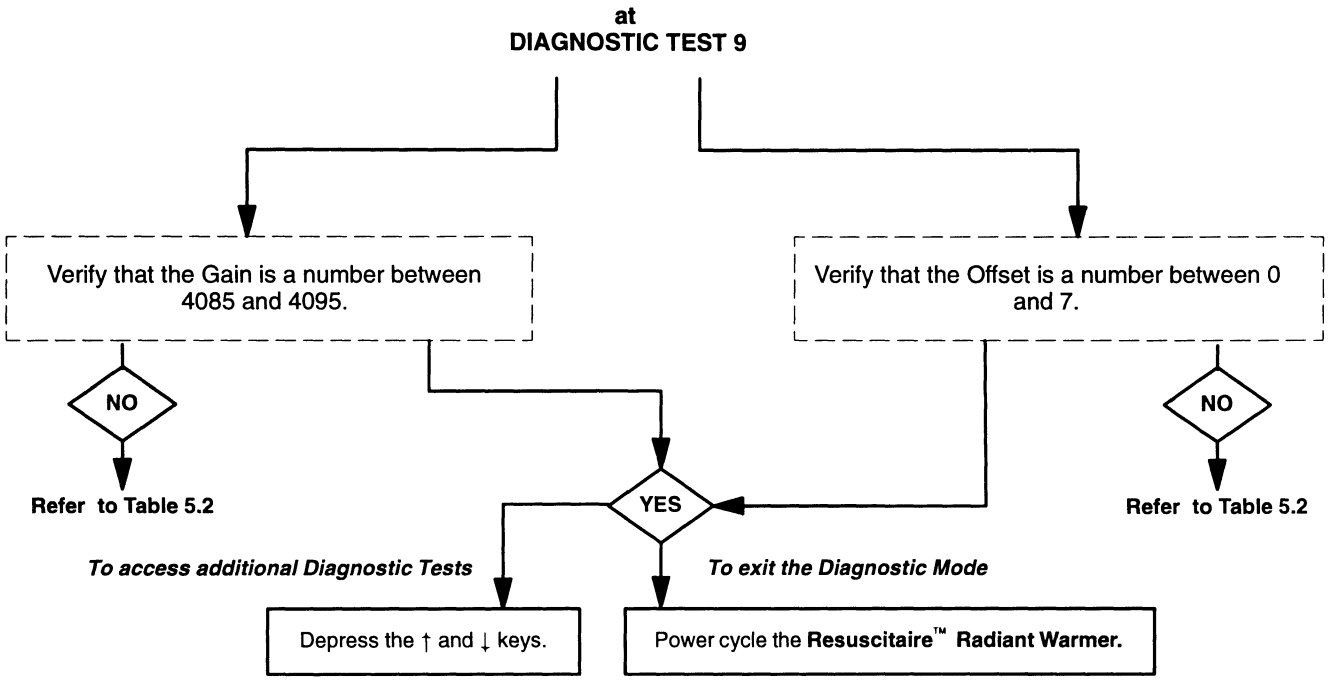
JP5	*JP6*	*UNIT CONFIG*	*FRONT PANEL DISPLAY*
on	*on*	*100 V 50/60 Hz*	*100*
off	*off*	*120 V 50/60 Hz*	*120*
off	*on*	*220 V 50 Hz PTB*	*P220*
on	*off*	*220 V 50/60 Hz*	*220*



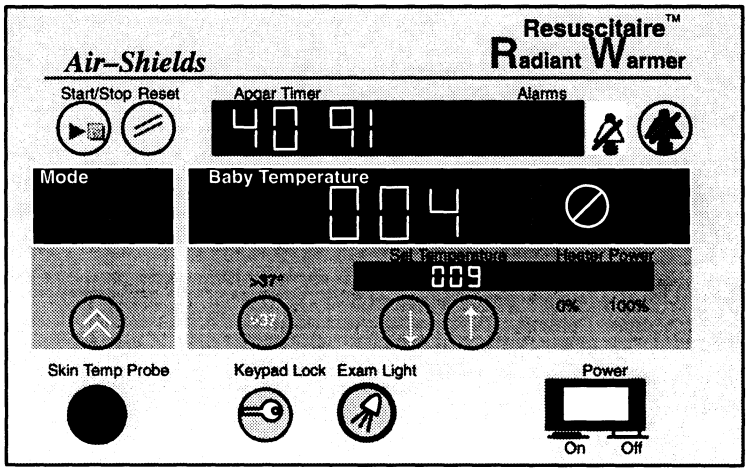
5.7.10
DIAGNOSTIC TEST 9 – ADC Offset/Gain Display

This test displays the ADC Gain and Offset on the Apgar and Baby Temperature Display, respectively. The external ADC reads the probe channels, probe calibration and ambient temperature. The Gain should be a number between 4085 and 4095. The Offset should be a number between 0 and 7.

NOTE: *If the ADC Gain is lower than 4085, FAIL will appear on the Apgar Display instead; and if the Offset is higher than 7, FAIL will appear on the Baby Temperature Display.*

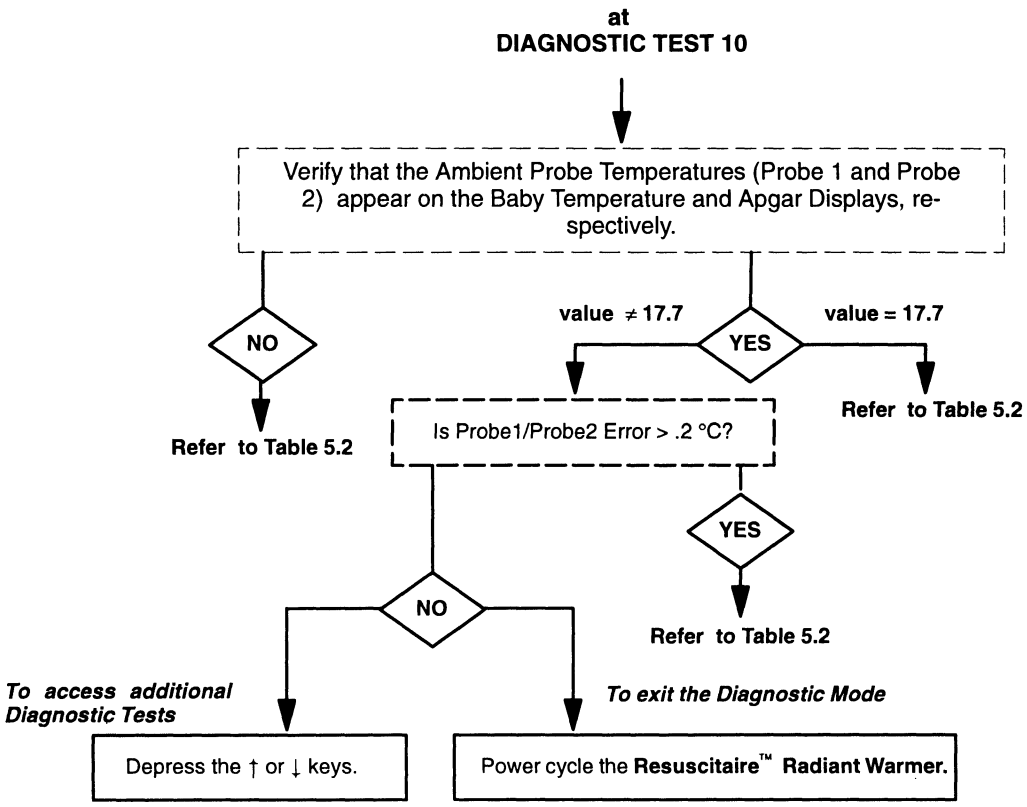

at
DIAGNOSTIC TEST 9
Verify that the Gain is a number between 4085 and 4095.
Verify that the Offset is a number between 0 and 7.
NO
Refer to Table 5.2
YES
NO
Refer to Table 5.2
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ and ↓ keys.
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

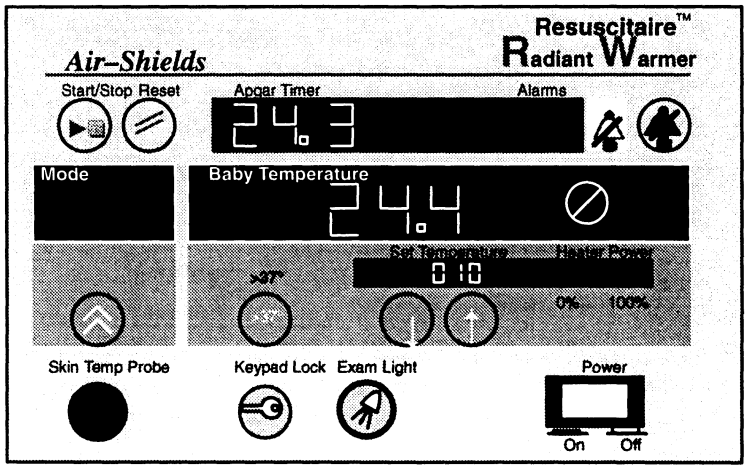


5.7.11
DIAGNOSTIC TEST 10 – Ambient Temperature Probe Display

This test displays the Ambient Probe Temperatures. Ambient Temperature Probe 1 is shown on the Baby Temperature Display. Ambient Temperature Probe 2 is shown on the Apgar Display. If there is no Ambient Temperature Probe, the value "17.7," which is the rail value, will appear on the Baby Temperature and/or Apgar Displays.

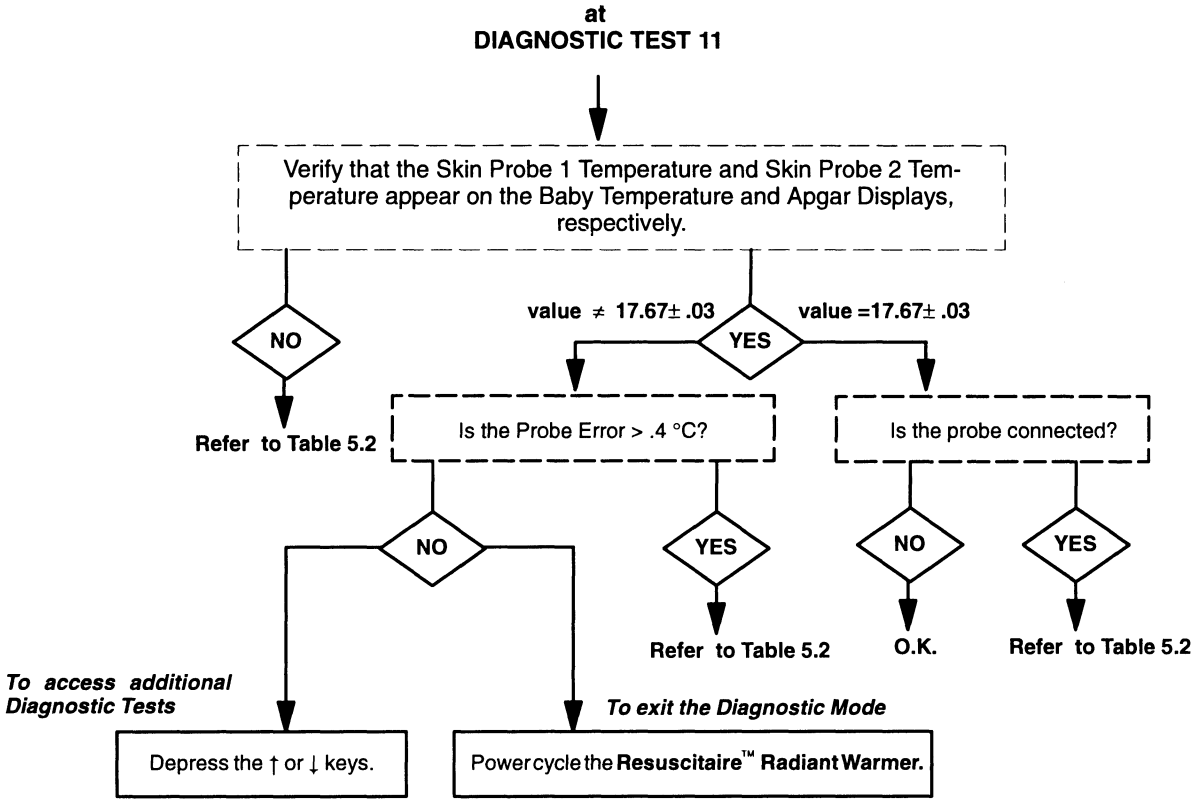

at
DIAGNOSTIC TEST 10
Verify that the Ambient Probe Temperatures (Probe 1 and Probe 2) appear on the Baby Temperature and Apgar Displays, respectively.
NO
Refer to Table 5.2
value ≠ 17.7
YES
value = 17.7
Refer to Table 5.2
Is Probe1/Probe2 Error > .2 °C?
YES
Refer to Table 5.2
NO
To access additional Diagnostic Tests
Depress the ↑ or ↓ keys.
To exit the Diagnostic Mode
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

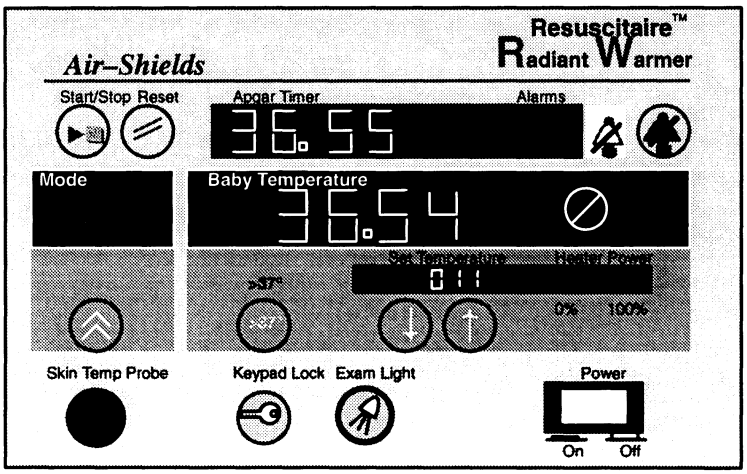


5.7.12
DIAGNOSTIC TEST 11 – Skin Probe Temperature Display

This test displays Skin Probe 1 temperature on the Baby Temperature Display and Skin Probe 2 temperature on the Apgar Display. If there is no Skin Temperature and/or Ambient Probe, the value "17.67 ± .03," which is the rail value, will appear on the Baby Temperature and/or Apgar Displays. This value will also appear if a problem exists.

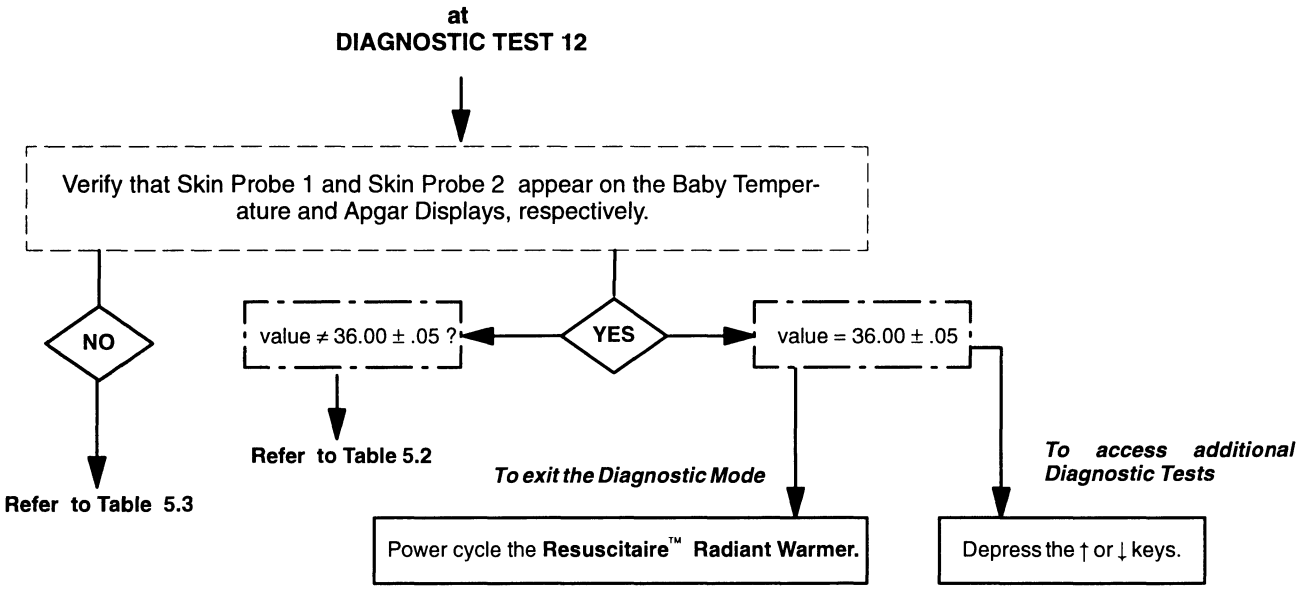

at
DIAGNOSTIC TEST 11
Verify that the Skin Probe 1 Temperature and Skin Probe 2 Temperature appear on the Baby Temperature and Apgar Displays, respectively.
NO
value ≠ 17.67± .03
YES
value =17.67± .03
Refer to Table 5.2
Is the Probe Error > .4 °C?
Is the probe connected?
NO
YES
NO
YES
Refer to Table 5.2
O.K.
Refer to Table 5.2
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ or ↓ keys.
Power cycle the Resuscitaire™ Radiant Warmer.

DISPLAY

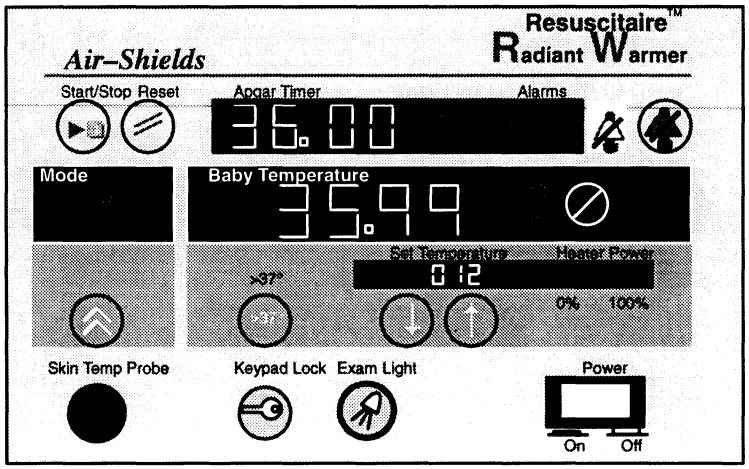


5.7.13
DIAGNOSTIC TEST 12 – Skin Probe Ringout Temperature Display

This test displays the Skin Probe 1 ringout temperature on the Baby Temperature Display and the Skin Probe 2 ringout temperature on the Apgar Display. Both displays should read 36.00 °C ± .05 °C.

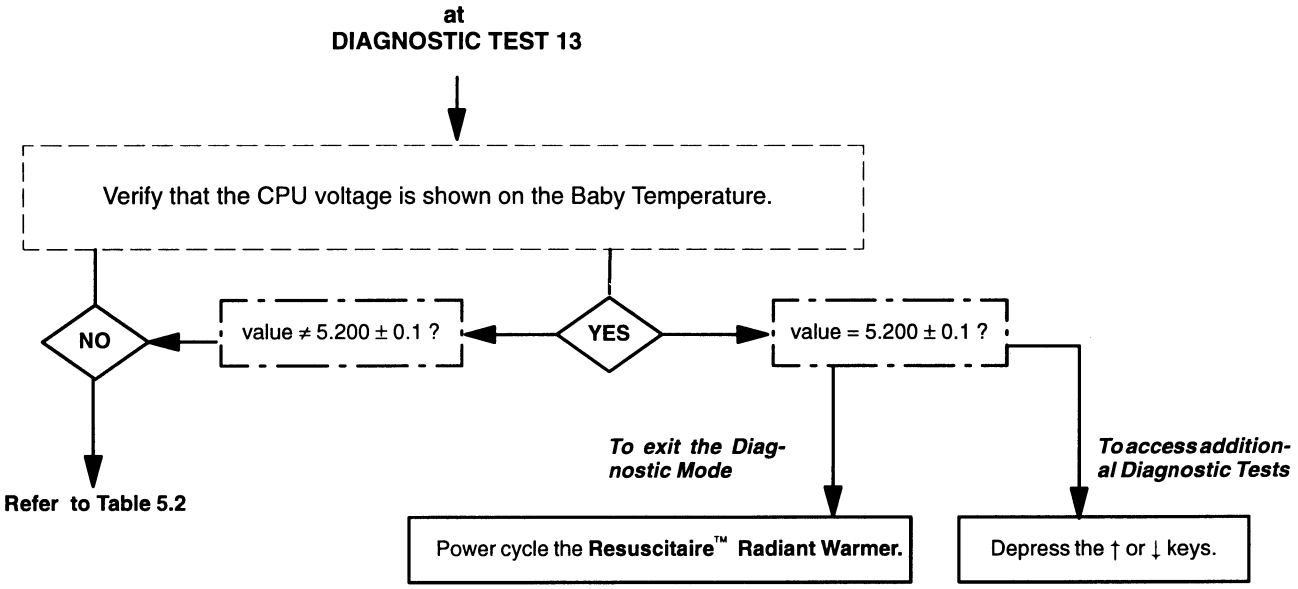

at
DIAGNOSTIC TEST 12
Verify that Skin Probe 1 and Skin Probe 2 appear on the Baby Temperature and Apgar Displays, respectively.
NO
YES
value ≠ 36.00 ± .05 ?
value = 36.00 ± .05
Refer to Table 5.3
Refer to Table 5.2
To exit the Diagnostic Mode
To access additional Diagnostic Tests
Power cycle the Resuscitaire™ Radiant Warmer.
Depress the ↑ or ↓ keys.

DISPLAY

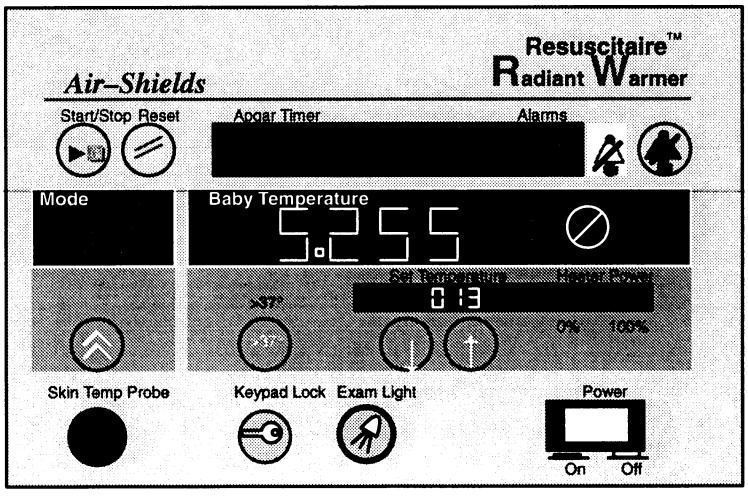


5.7.14
DIAGNOSTIC TEST 13 – Logic Voltage Display

This test displays the CPU Voltage on the Baby Temperature Display. The displayed value should be in the range of 5.200 ± 0.1 Vdc.

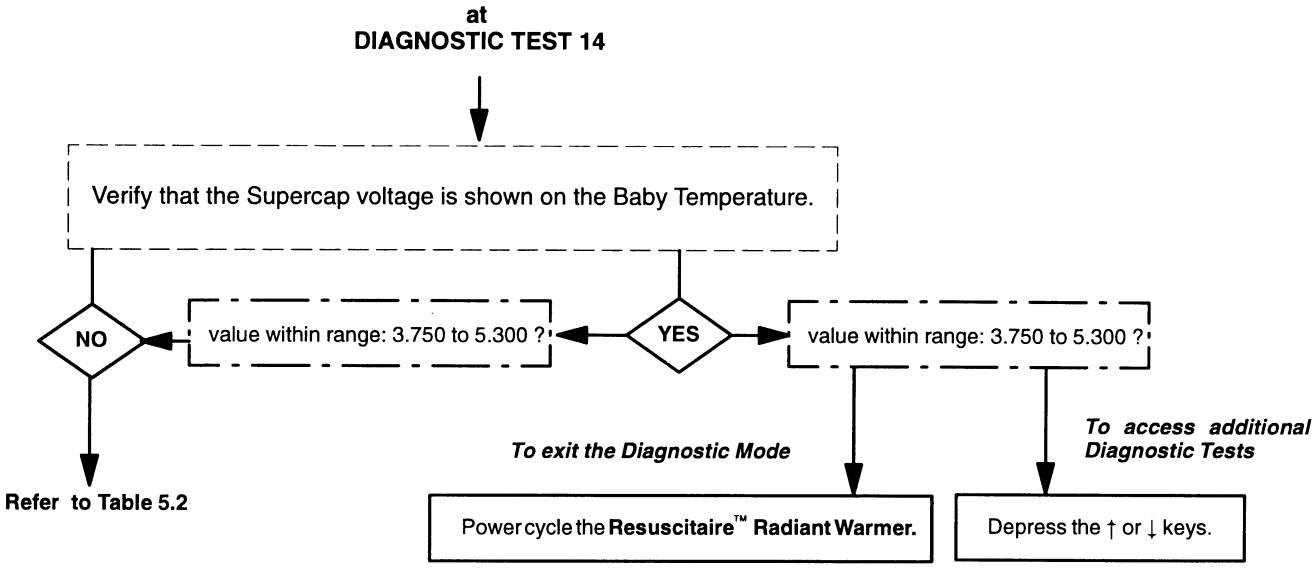

at
DIAGNOSTIC TEST 13
Verify that the CPU voltage is shown on the Baby Temperature.
NO
value ≠ 5.200 ± 0.1 ?
YES
value = 5.200 ± 0.1 ?
Refer to Table 5.2
To exit the Diagnostic Mode
To access additional Diagnostic Tests
Power cycle the Resuscitaire™ Radiant Warmer.
Depress the ↑ or ↓ keys.

DISPLAY

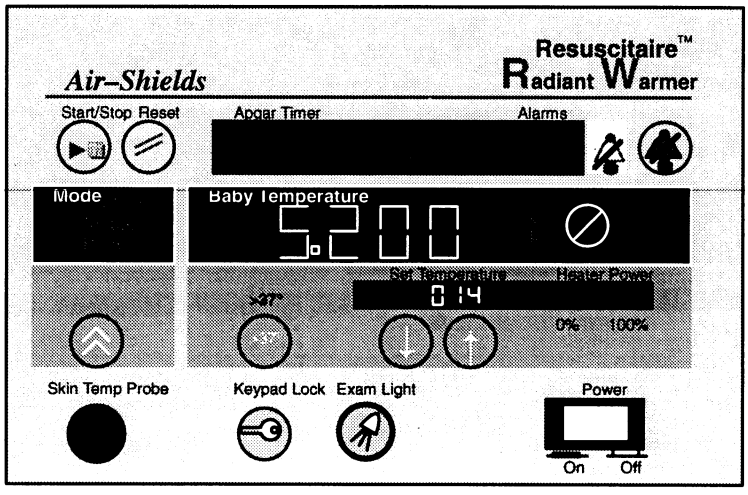


5.7.15
DIAGNOSTIC TEST 14 – Supercap Voltage Display

This test displays the Supercap Voltage of the Power Fail Detection Circuit on the Baby Temperature Display. The displayed value should be in the range of 3.750 to 5.300 Vdc.

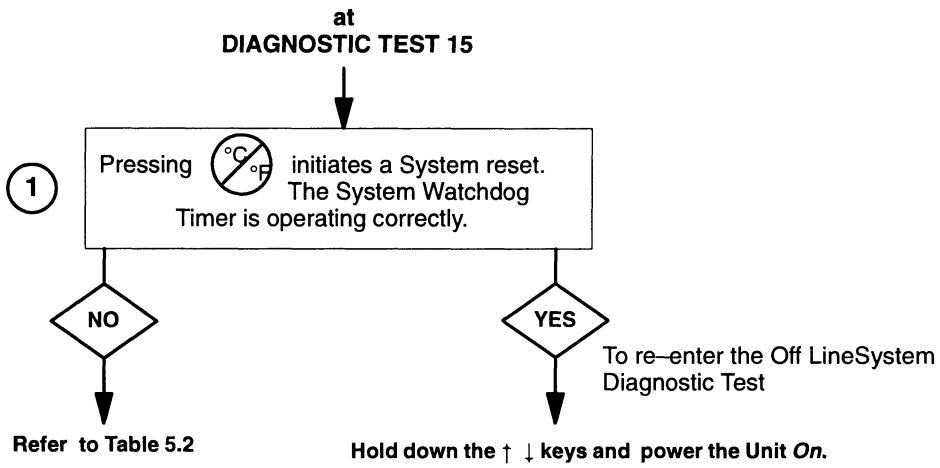

at
DIAGNOSTIC TEST 14
Verify that the Supercap voltage is shown on the Baby Temperature.
NO
value within range: 3.750 to 5.300 ?
YES
value within range: 3.750 to 5.300 ?
Refer to Table 5.2
To exit the Diagnostic Mode
To access additional Diagnostic Tests
Power cycle the Resuscitaire™ Radiant Warmer.
Depress the ↑ or ↓ keys.

DISPLAY



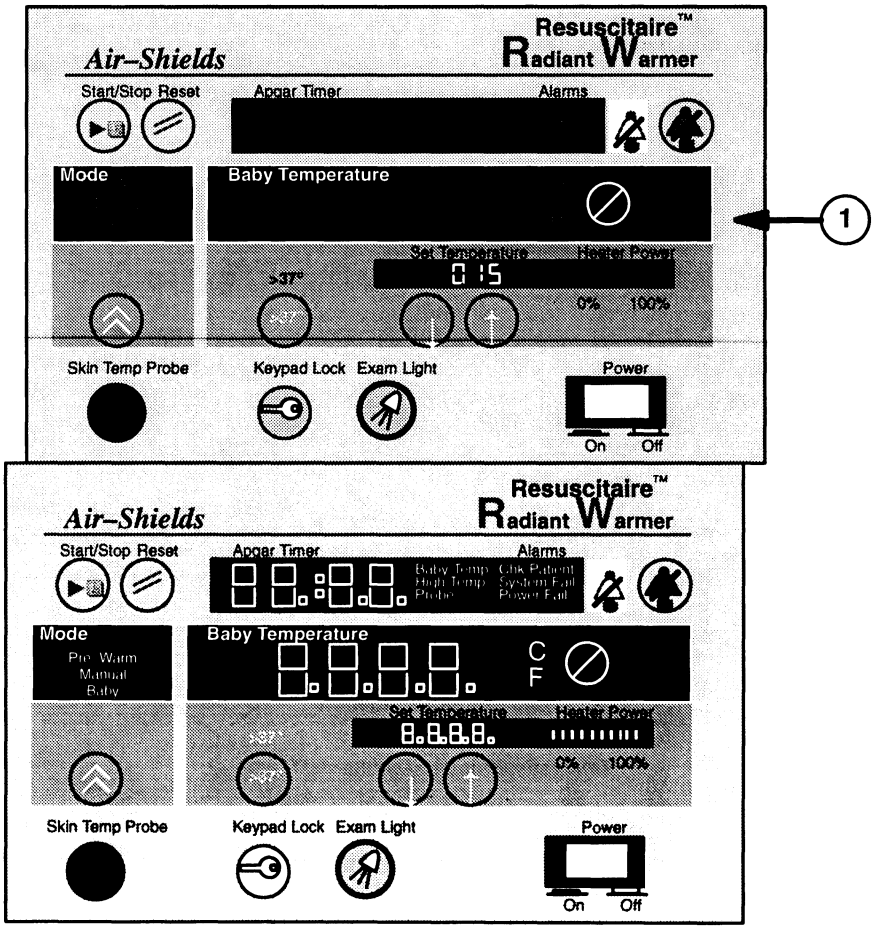
5.7.16
DIAGNOSTIC TEST 15 – Watchdog Timer Test

This test will initiate a Watchdog Timer time–out. Pressing °C/°F, at Test 15, will initiate a System reset.



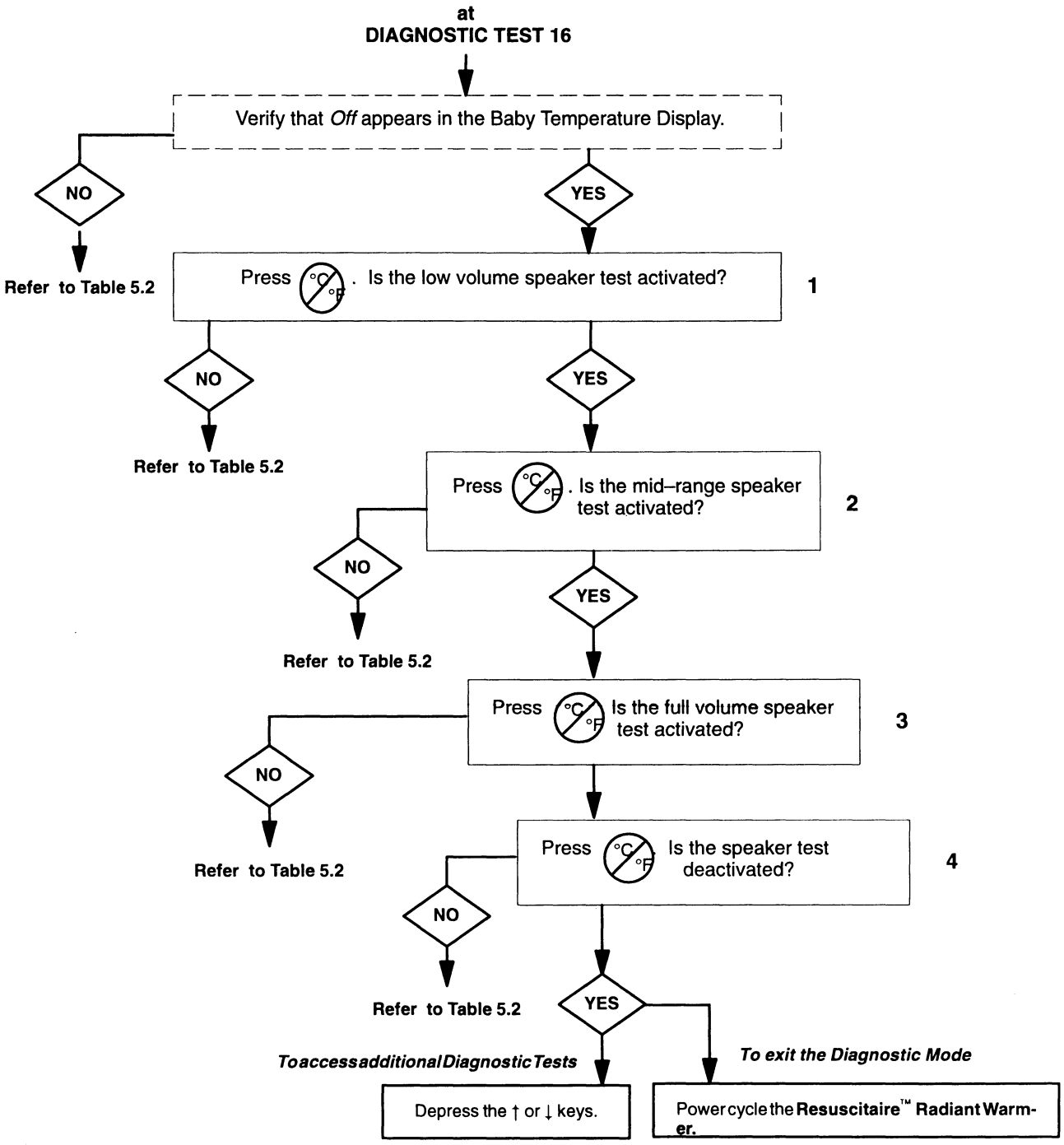
NOTE: *This test should be performed last since it restarts the System in normal operation.*

DISPLAY

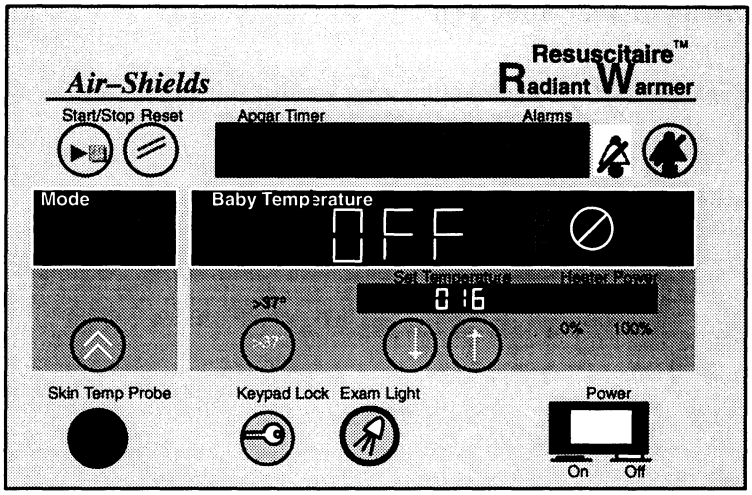


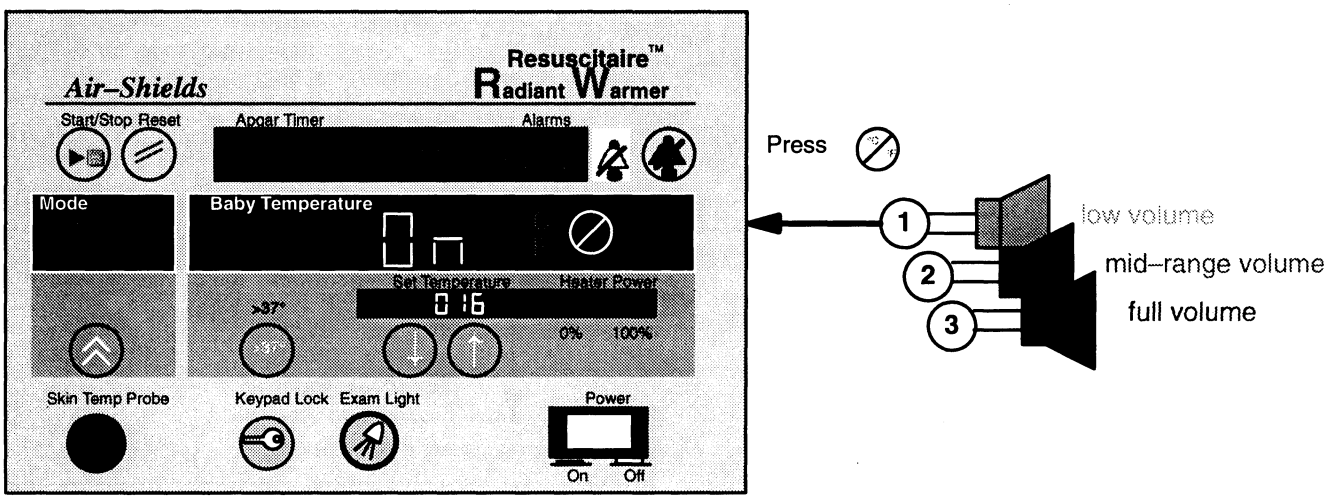
5.7.17
DIAGNOSTIC TEST 16 – Speaker Test

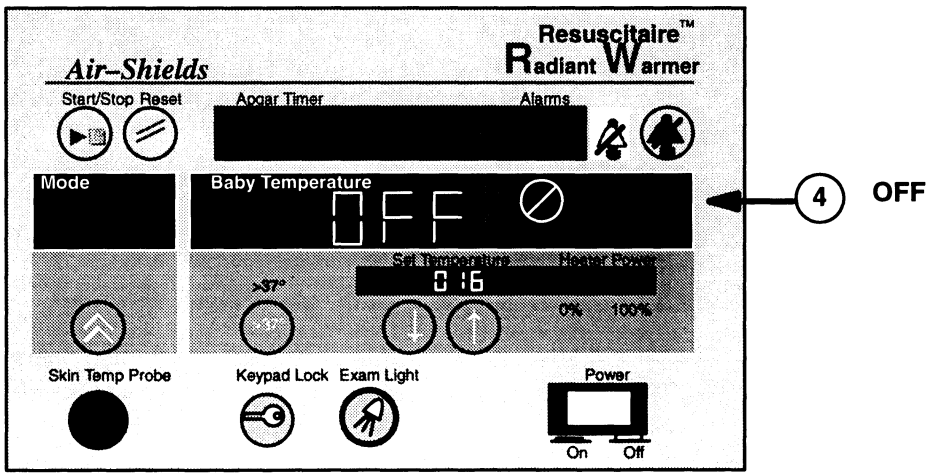
This test will activate the speaker test. Once the test has been activated, the three ranges (low volume, mid–range and full volume) of the speaker volume are tested by pressing °C/°F .



DISPLAY

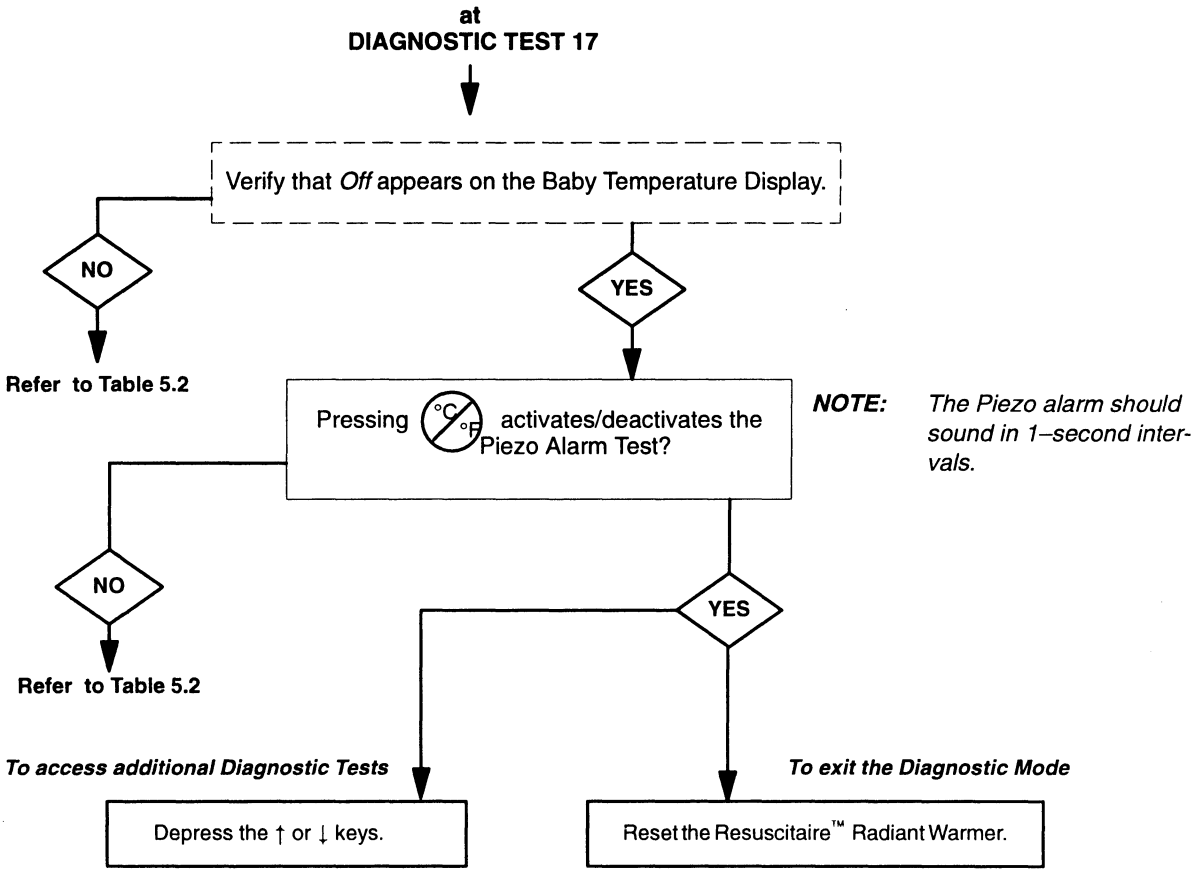

Air–Shields
Resuscitaire™
Radiant Warmer
Start/Stop Reset
Apgar Timer
Alarms
Mode
Baby Temperature
OFF
Set Temperature
Heater Power
>37°
0:16
0%
100%
Skin Temp Probe
Keypad Lock
Exam Light
Power
On
Off


Air–Shields
Resuscitaire™
Radiant Warmer
Start/Stop Reset
Apgar Timer
Alarms
Mode
Baby Temperature
Set Temperature
Heater Power
>37°
0:16
0%
100%
Skin Temp Probe
Keypad Lock
Exam Light
Power
On
Off
Press
1
low volume
2
mid–range volume
3
full volume

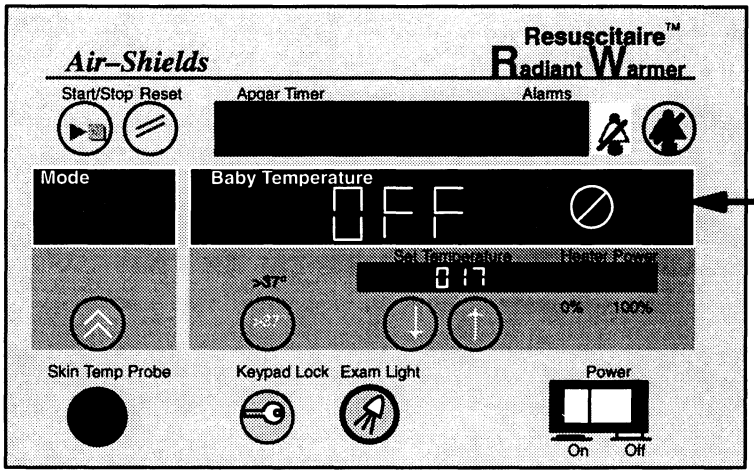

Air–Shields
Resuscitaire™
Radiant Warmer
Start/Stop Reset
Apgar Timer
Alarms
Mode
Baby Temperature
OFF
Set Temperature
Heater Power
>37°
0:16
0%
100%
Skin Temp Probe
Keypad Lock
Exam Light
Power
On
Off
4
OFF

5.7.18
DIAGNOSTIC TEST 17 – Back–up Audio Annunciation Test

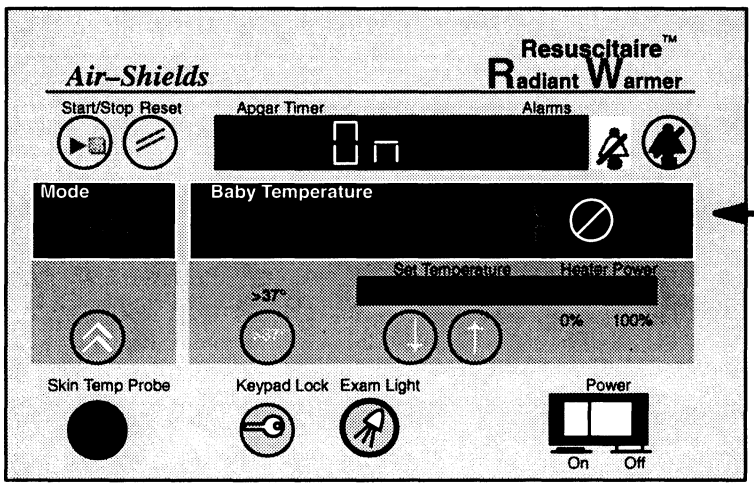
This test will exercise the Piezo Alarm. Pressing °C/°F at Diagnostic Test 17 will activate the Piezo Alarm.


at
DIAGNOSTIC TEST 17
Verify that *Off* appears on the Baby Temperature Display.
NO
YES
Refer to Table 5.2
Pressing °C/°F activates/deactivates the Piezo Alarm Test?
NOTE: The Piezo alarm should sound in 1–second intervals.
NO
YES
Refer to Table 5.2
To access additional Diagnostic Tests
To exit the Diagnostic Mode
Depress the ↑ or ↓ keys.
Reset the Resuscitaire™ Radiant Warmer.

DISPLAY



To activate.



To deactivate.

5.8 TROUBLESHOOTING

5.8.1 GENERAL TROUBLESHOOTING GUIDELINES FOR SYSTEM ERROR CODES

Below in Table 5.1 is a Troubleshooting Guideline for the **Resuscitaire™ Radiant Warmer** System Error Codes.

TABLE 5.1 TROUBLESHOOTING GUIDELINES FOR SYSTEM ERROR CODES

ERROR NUMBER	EXPLANATION	POSSIBLE CORRECTIVE ACTION
ERROR #1	AC LINE VOLTAGE TOO LOW	Refer to Table 5.2, under Test 6.
ERROR #2	AC LINE VOLTAGE TOO HIGH	Refer to Table 5.2, under Test 6.
ERROR #3	SSR'S PATH SHORTED	Replace PCB2.
ERROR #4	HEATER CIRCUIT FAILURE – SHORT	Replace PCB2.
ERROR #5	SSR#1 FAILURE – OPEN	Replace PCB2.
ERROR #6	SSR#2 FAILURE – OPEN	Replace PCB2.
ERROR #7	SAFETY RELAY FAILURE – SHORT	Refer to Table 5.2, under Test 6.
ERROR #8	AC HEATER CURRENT HIGH	• Check the Quartz Tube Heating Element and replace if necessary. • Replace PCB2.
ERROR #9	HARDWARE DETECTION OF HIGH TEMPERATURE >39.5°C	• If the heater is On, replace PCB2. • Check for an ancilliary heat source.
ERROR #10	POWER FAIL CIRCUIT FAILURE	Replace PCB2.
ERROR #11	CPU VOLTAGE OUT OF SPEC	Refer to Table 5.2, under Test 13.
ERROR #12	KEYPAD FAILURE	Refer to Table 5.2, under Test 4.
ERROR #13	ROM TEST FAILURE	Refer to Table 5.2, under Test 2.
ERROR #14	RAM TEST FAILURE	Refer to Table 5.2, under Test 1.
ERROR #15	EEPROM TEST FAILURE	Refer to Table 5.2, under Test 7.
ERROR #16	A/D OFFSET OUT OF SPEC	Refer to Table 5.2, under Test 9.
ERROR #17	A/D GAIN OUT OF SPEC	Refer to Table 5.2, under Test 9.
ERROR #18	(PATIENT TEMP PROBE 1/ PATIENT TEMP PROBE) ERROR > .4 DEG C	Refer to Table 5.2, under Test 11.
ERROR #19	NOT USED	
ERROR #20	EXTERNAL WATCHDOG TIMER FAIL	Replace PCB2.
ERROR #21	(AMBIENT TEMP PROBE 1/ AMBIENT TEMP PROBE) ERROR > .4 DEG C	Refer to Table 5.2, under Test 10.
ERROR #22	36 DEG PROBE CAL ERR> .2 DEG C	Refer to Table 5.2, under Test 12.
ERROR #23	AMBIENT TEMP TOO HIGH > 32 DEG C	Verify ambient temperature with an external thermometer.

5.8.2 GENERAL TROUBLESHOOTING GUIDELINES FOR SYSTEM DIAGNOSTIC CODES

Below in Table 5.2 is a Troubleshooting Guideline for the **Resuscitaire™ Radiant Warmer** System Diagnostic Codes.

TABLE 5.2 TROUBLESHOOTING GUIDELINES FOR SYSTEM DIAGNOSTICS

TEST NUMBER	SYMPTOM	POSSIBLE CORRECTIVE ACTION
TEST #1	ERRONEOUS VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	• FAULTY U11 OR U12; REPLACE PCB1. • CHECK THE SOFTWARE REVISION LEVEL WITH LABEL ON U12.
TEST #2	ERRONEOUS VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	• FAULTY U11 OR U12; REPLACE PCB1. • ROM TEST FAILURE; REPLACE PCB2. • CHECK THE SOFTWARE REVISION LEVEL WITH LABEL ON U12.
TEST #3	ALL OF THE LEDs DO NOT TURN *ON* POWER FAIL LED DOES NOT BLINK PIEZO ALARM DOES NOT SOUND	REPLACE PCB1. REPLACE PCB2. • REPLACE PCB2. • REPLACE PIEZO ON FAN BRACKET (REFER TO FIGURE 6.7).
TEST #4	NO RESPONSE FROM THE APGAR START/STOP KEY NO RESPONSE FROM THE APGAR START/STOP KEY NO RESPONSE FROM THE SILENCE/ RESET KEY NO RESPONSE FROM THE MODE SELECT KEY NO RESPONSE FROM THE >37 KEY NO RESPONSE FROM THE °C/°F KEY NO RESPONSE FROM THE KEYPAD LOCK KEY	FAULTY S4; REPLACE PCB1. FAULTY S5; REPLACE PCB1. FAULTY S3; REPLACE PCB1. FAULTY S1; REPLACE PCB1. FAULTY S8; REPLACE PCB1. FAULTY S2; REPLACE PCB1. FAULTY S1; REPLACE S1 ON THE ELECTRICAL MODULE (REFER TO FIGURE 7.3).
TEST #5	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY THE VALUE APPEARING ON THE BABY TEMPERATURE DISPLAY DOES NOT AGREE WITH THE VALUES FOUND IN TABLE 5.A.	FAULTY U1; REPLACE PCB1. RUN DIAGNOSTIC TEST 6, FIRST TO VERIFY THE LINE VOLTAGE.

TABLE 5.2 TROUBLESHOOTING GUIDELINES FOR SYSTEM DIAGNOSTICS (CONT.)

TEST NUMBER	SYMPTOM	POSSIBLE CORRECTIVE ACTION
TEST #6	STATUS OF THE RELAY DOES NOT CHANGE	SAFETY RELAY FAILURE; REPLACE PCB2.
	AC LINE VOLTAGE IS TOO HIGH OR TOO LOW	MAKE SURE POWER SOURCE IS IN COMPLIANCE WITH ELECTRICAL SPECIFICATION OF THE SYSTEM.
TEST #7	DISPLAY IS A HEXADECIMAL NUMBER OTHER THAN 001 OR 008	EEPROM TEST FAILURE; REPLACE PCB2.
TEST #8	FRONT PANEL DISPLAY OF THE UNIT CONFIGURATION DOES NOT AGREE WITH THE JUMPER (J5 AND J6) PLACEMENT.	• CHECK JUMPER J5 AND J6, ON PCB2. • REPLACE PCB2.
TEST #9	GAIN IS OUTSIDE OF SPECIFIED RANGE, 4085–9085	FAULTY U4; REPLACE PCB1.
	OFFSET IS OUTSIDE OF SPECIFIED RANGE, 0 TO 7	FAULTY U4; REPLACE PCB1.
TEST #10	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	NO VALUE APPEARS ON THE APGAR DISPLAY	REPLACE PCB1.
	DIFFERENCE IN DISPLAYED TEMPERATURE EXCEEDS .4 °C	CHECK FOR FAULTY AMBIENT TEMPERATURE PROBE(S). ***NOTE:*** *THE AMBIENT PROBE IS INTERNAL. IT MUST BE ATTACHED IN ORDER FOR THE UNIT TO FUNCTION PROPERLY.*
TEST #11	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	NO VALUE APPEARS ON THE APGAR DISPLAY	REPLACE PCB1.
	DIFFERENCE IN DISPLAYED TEMPERATURE EXCEEDS .4°C	CHECK FOR FAULTY SKIN TEMPERATURE PROBE(S).
TEST #12	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	NO VALUE APPEARS ON THE APGAR DISPLAY	REPLACE PCB1.
	VALUE ≠ 36.00 ± .02 °C	CALIBRATE SKIN PROBES; REFER TO SECTION 4.
TEST #13	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	VALUE ≠ 5.200 ± .1 VOLTS °C	CHECK VOLTAGE FROM DC POWER SUPPLY.

TABLE 5.2 TROUBLESHOOTING GUIDELINES FOR SYSTEM DIAGNOSTICS AND ERROR CODES (CONT.)

TEST NUMBER	SYMPTOM	POSSIBLE CORRECTIVE ACTION
TEST #14	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	SUPERCAP VALUE > 5.2 OR SUPERCAP VALUE < 3.750	FAULTY C29; REPLACE PCB2.
TEST #15	SYSTEM DOES NOT RESET	REPLACE PCB2.
TEST #16	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	PRESSING °C/°F KEY DOES NOT ACTIVATE THE LOW ALARM	REPLACE PCB2.
	PRESSING °C/°F KEY (X2 OR X3) DOES NOT INCREASE THE VOLUME	REPLACE PCB2.
TEST #17	NO VALUE APPEARS ON THE BABY TEMPERATURE DISPLAY	REPLACE PCB1.
	PRESSING °C/°F KEY DOES NOT ACTIVATE/DEACTIVATE THE PIEZO ALARM.	FAULTY POWER FAIL DETECTION CIRCUITRY; REPLACE PCB2.

5.8.3 GENERAL TROUBLESHOOTING GUIDELINES FOR THE RADIANT WARMER

Below in Table 5.3 is a Troubleshooting Guideline specific to the Radiant Warmer Section of the **Resuscitaire™ Radiant Warmer** System.

TABLE 5.3 TROUBLESHOOTING GUIDELINES FOR THE RADIANT WARMER

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
HEATER DOES NOT TURN *ON*	FAULTY RELAY, K1	REPLACE PCB2.
	OPEN HEATING ELEMENT	REPLACE QUART HEATING ELEMENT
	LOOSE CONNECTION AT J4	CHECK FOR LOOSE CONNECTION AT J4 ON PCB2.
	BROKEN PIN ON CONNECTOR J4	REPLACE PCB2.

TABLE 5.3 TROUBLESHOOTING GUIDELINES FOR THE RADIANT WARMER (CONT.)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
THE PRE-WARM MODE IS NOT ACTIVATED UPON A RESET OF THE SYSTEM	SYSTEM IS IN THE DIAGNOSTIC MODE	EXIT THE DIAGNOSTIC MODE BY RESETTING THE SYSTEM.
	ROM FAILURE	REPLACE PCB2.
HEATER IS *ON*, BUT THE INDICATORS ARE *OFF*	FAULTY DISPLAY DRIVER	REPLACE PCB1.

5.8.4 GENERAL TROUBLESHOOTING GUIDELINES FOR THE PNEUMATIC HARDWARE

Below in Table 5.4 is a Troubleshooting Guideline specific to the Pneumatic Hardware Section of the **Resuscitaire™ Radiant Warmer** System.

TABLE 5.4 TROUBLESHOOTING GUIDELINES FOR THE PNEUMATIC HARDWARE

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
SUCTION		
CAN NOT OBTAIN THE DESIRED SUCTION PRESSURE	SUCTION JAR RIM GASKET WORN	REPLACE THE SUCTION JAR.
	SUCTION JAR LOOSE OR CHIPPED	TIGHTEN/REPLACE THE SUCTION JAR.
	CONNECTING HOSE IS BENT OR TANGLED	REPLACE THE HOSE.
	LEAK IN THE HOSE BETWEEN THE REGULATOR AND BOTTLE	REPLACE THE HOSE.
	PRESSURE OR SUCTION GAUGE NOT MEASURING CORRECTLY	REPLACE THE SUCTION MODULE.
	SUCTION FILTER IS DIRTY	REPLACE THE SUCTION FILTER.

TABLE 5.4 TROUBLESHOOTING GUIDELINES FOR THE PNEUMATIC HARDWARE (CONT.)

SYMPTOM	PROBABLE CAUSE	CORRECTIVE ACTION
BLENDER		
O_2 CONCENTRATION READING DOESN'T MATCH BLENDER SETTING	BLENDER IS INOPERABLE	REPLACE THE BLENDER MODULE.
OUTPUT MIXTURE IS OUTSIDE OF THE SPECIFIED RANGE (20.8% TO 100%)	BLENDER IS INOPERABLE	REPLACE THE BLENDER MODULE.
PATIENT GAS SUPPLY		
MEASURED FLOW FALLS OUTSIDE OF THE SPECIFIED ±3% OF FULL SCALE OR 10% OF SETTING	DIRTY OR BLOCKED AIR/O_2 HOSE	REPLACE HOSE.
PRESSURE RELIEF GAUGE EXCEEDS: 50 cmH_2O ± 8 cmH_2O	INOPERABLE PRESSURE RELIEF VALVE	REPLACE PRESSURE RELIEF VALVE.
AUTOBREATH		
I/E RATIO IS 1:1	FAULTY LOGIC CIRCUIT	REPLACE RESUSCITATION MODULE.
MEASURE BPM OUTSIDE OF THE SPECIFIED 10 TO 60 BPM	FAULTY LOGIC CIRCUIT	REPLACE RESUSCITATION MODULE.

5.9 REMOVAL AND REPLACEMENT PROCEDURES

5.9.1 GENERAL

This section provides the removal and replacement procedures for components belonging to the **Resuscitaire™ Radiant Warmer**. Removal and replacement of components not listed are obvious upon inspection.

5.9.2 REMOVING AND REPLACING THE BACK COVER (refer to Figure 6.1)

Removing the Back Cover

1. Unplug the power cord from the wall receptacle.
2. Unplug the power cord from the connector on the Upper Post (1) of the Resuscitaire™ Radiant Warmer.

   NOTE: *Do not detach the cord from the cable clamp on the Back Cover (2).*

   For Pipeline Gas Supplies
3. Disconnect the pipeline supply hoses.

   For Reserve Gas Supplies
4. Close the cylinder valves, using the attached cylinder wrench and remove the reserve gas cylinders.
5. Remove the four Mounting Screws (19) securing the Back Cover to the Upper Post of the Resuscitaire™ Radiant Warmer.

Replacing the Back Cover

6. Mount the Back Cover on the rear of the Upper Post and replace the four Mounting Screws securing the Back Cover.

   The next step applies to Reserve Gas Supplies only
7. Replace the reserve gas cylinders and open the cylinder valves, using the attached cylinder wrench.

   The next step applies to Pipeline Gas Supplies only
8. Reconnect the pipeline supply hoses.
9. Plug the power cord into the connector on the Upper Post of the **Resuscitaire™ Radiant Warmer**.
10. Plug the power cord into the wall receptacle.

5.9.3 REMOVING AND REPLACING THE ELECTRICAL MODULE (refer to Figure 6.1)

Removing the Electrical Module

1. Remove the Back Cover (2).
2. Remove the Mounting Screws (20) securing the Electrical Module (6) to the Upper Post (1).
3. Slide the Module to the front of the Upper Post, but do not remove the Module.
4. Prior to removing the Module, disconnect the Power Cable from J4 on the Controller Board.

Replacing the Electrical Module

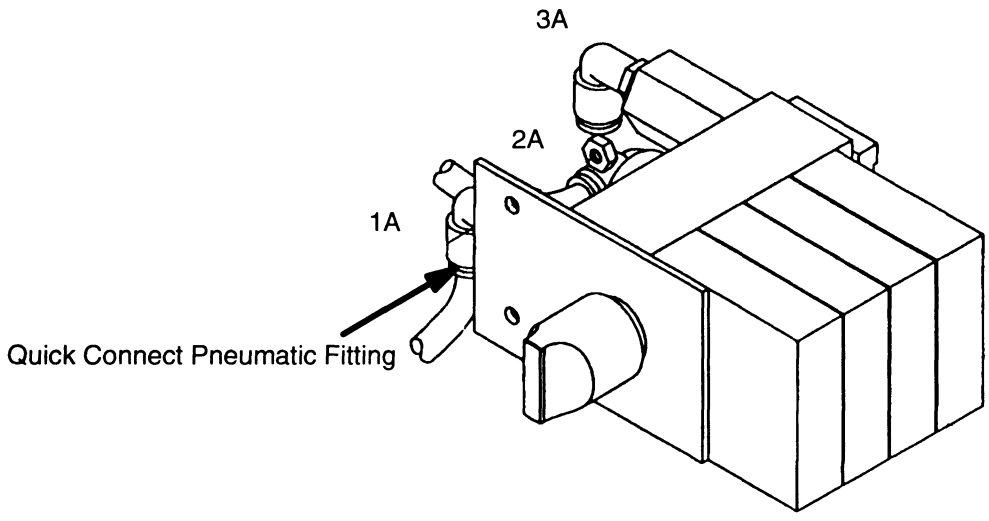
5. Align the wires with the center groove of the Electrical Module and position the Module into the Upper Post. Make sure there is enough room to reconnect the Power Cable.
6. Reconnect the Power Cable to connector J4 on the Controller Board.
7. Slide the Module to the rear of the Upper Post and align the Module with the Mounting Screw holes in the post.
8. Replace the Mounting Screws.
9. Replace the Back Cover.

5.9.4 REMOVING AND REPLACING THE BLENDER MODULE (refer to Figure 6.1)

Removing the Blender Module

1. Remove the Back Cover (2).
2. Remove the Mounting Screws securing the Blender Module (7) to the Upper Post (1).
3. Disconnect the following gas tubes:
   - Air Inlet (1A)
   - Oxygen Inlet (2A)
   - Blended Output (3A)

   NOTE: *To disconnect the tubes from the Quick Connect pneumatic fittings, press in on the red portion of the fitting and pull the tube away from the fitting.*



4. Slide the Module towards the front of the Upper Post and remove the Module.

Replacing the Blender Module

5. Slide the Module toward the rear of the Upper Post and align the Module with the mounting screw holes in the post.
6. Replace the two Mounting Screws.
7. Reconnect the following gas tubes:
   - Air Inlet
   - Oxygen Inlet
   - Blended Output

   NOTE: *To ensure proper seating of the gas tubes when connecting to the Quick Connect pneumatic fittings: 1) firmly push the gas tubes into the pneumatic fittings; then 2) pull back on the gas tube. The tube should remain secure in the pneumatic fitting.*
8. Replace the Back Cover.

5.9.5 REMOVING AND REPLACING THE RESUSCITATION MODULE

(refer to Figure 6.1 and Table 5.5)

Removing the Resuscitation Module

1. Remove the Back Cover (2).

Steps 2., 3., and 4 are applicable if the Unit is equipped with a Blender Module:

2. Disconnect Tube 1.
3. Disconnect Tube 2.
4. Disconnect Tube 3.
5. Disconnect Tube 4.
6. Remove the Mounting Screws securing the Resuscitation Module (8) to the Upper Post.
7. Slide the Module towards the front of the Upper Post (1) and disconnect Tube 5.
8. Remove the Module.

Replacing the Resuscitation Module

9. Reposition the loose tubes.
10. Slide the Module toward the rear of the Upper Post and reconnect Tube 5.
11. Align the Module with the mounting screw holes in the post.
12. Replace the Mounting Screws.
13. Reconnect Tube 1, Tube 2, Tube 3 and Tube 4.
14. Replace the Back Cover.

TABLE 5.5 RESUSCITATION MODULE TUBE GAS FLOW CHART

DESCRIPTION	GAS FLOW 'FROM'	GAS FLOW 'TO'
TUBE 1, 3/8"	BLENDER MIXED OUTPUT	RESUSCITATION™ PATIENT GAS INLET
TUBE 2, 3/8"	RESUSCITATION MODULE TEE FITTING	BLENDER O_2 INLET
TUBE 3, 5/16"	GAS SUPPLY AIR OUTLET	BLENDER AIR INLET
TUBE 4, PVC	RESUSCITATION MODULE SUCTION HOSE BAR	SUCTION BOTTLE
TUBE 5, 3/8"	GAS SUPPLY O_2 OUTLET	TEE FITTING ON THE RESUSCITATION™ MODULE

5.9.6 REMOVING AND REPLACING THE GAS SUPPLY MODULE

(refer to Figure 6.1)

Removing the Gas Supply Module

1. Remove the Back Cover (2).
2. Remove the dressed jam nut on the On/Off Switch of the Gas Supply Module (9).
3. Remove the Mounting Screws, securing the Module to the post.

(refer to Figures 6.4 and 6.5)

4. Pull the top of the Chassis (1) away from the post, then lift the Chassis from the post.

   NOTE: *Be careful not to pull on the Suction Supply Tube.*

5. If applicable, disconnect the air supply (top) from the Chassis.
6. Disconnect the O_2 supply (bottom) from the Chassis.

Replacing the Gas Supply Module

7. Mount the flap, on the bottom of the Gas Supply Chassis, onto the post of the Unit.
8. Reconnect the Air and O_2 supplies.
9. If necessary, remove the Gas Supply Chassis from the post, in order to properly align the Chassis with the holes on the front of the Unit.

   NOTE:
   - *Make sure that the Suction Supply Tube is not pinched.*
   - *Make sure that the toggle switch is facing downward.*

10. Replace the four Mounting Screws (1/2" 10–32, Nylok).
11. Replace the jam nut on the On/Off Switch.
12. Align the springloaded gauges with the cut–outs on the post.
13. Replace the Back Cover.

5.9.7 REMOVING AND REPLACING THE QUARTZ HEATER ELEMENT

(refer to Figures 6.9 and 7.5)

Removing the Heater Element

1. Remove the six Mounting Screws (32) on the top of the Warmer Head (30). Lift the top of the Warmer Head away from the Unit.
2. Disconnect the two connectors (red and orange) connected to the wiring harness.
3. Under the hood, remove the two Retaining Springs (51) from both sides of the heater element.
4. Remove the Metal Reflector (6).
5. Using the wire, slide the Quartz Heating Element (5) towards the front of the Warmer Head.

Replacing the Heater Element

6. Replace the old Heating Element.
7. Using the wire, slide the new heater element towards the back of the Warmer Head.
8. Replace the Metal Reflector and the Retaining Springs.
9. On top of the Warmer Head, reconnect the two connectors (red and orange).
10. Mount the top of the Warmer Head onto the Warmer with the six Mounting Screws.

SECTION 6
PARTS LIST

6.1 GENERAL

This section provides the parts lists for the Resuscitaire™ Radiant Warmer. Part numbers of operator replaceable parts, disposables, accessories and single use items are provided below:

6.2 REPLACEABLE PARTS, DISPOSABLES AND ACCESSORIES

OPERATOR REPLACEABLE PARTS	PART NUMBER
Bassinet Side Panel Assy	81 900 00
Bassinet Rear Panel Assy	81 900 01
Bassinet Front Panel Assy	81 900 02
Power Cord 110V Units	17 AZ 104
Power Cord 220/240V Units	17 AZ 204
Skin Temperature Probe (Reusable)	81 300 05
Reusable Suction Bottle	08 300 05
Filter–to–Tubing (Box of 25)	81 001 54
Mattress/Cover (Mattress with Cover)	78 162 18
Reusable Manual/Automatic Breathing Circuit	81 000 15
Diaphragm/Tubing Kit (Box of 25)	81 000 07

DISPOSABLES	
Premi–Probe® Skin Temperature Probe (Box of 10)	81 300 08
Premi–Probe® Skin Temperature Probe (10 Boxes of 10)	81 300 09
Suction Filter	81 101 32
Manual/Automatic Breathing Circuit (Box of 25)	81 000 06
Critter Cover® Probe Covers (Box of 100)	68 209 46
Critter Cover® Probe Covers (Box of 600)	68 209 45
Neat Clips – 3/8" Diameter (Box of 100)	68 120 53
Neat Clips – 1.00" Diameter (50/Case)	68 120 54
Sheets (Carton of 12)	78 168 22
Receiving Blankets (Carton of 24)	78 169 20
Suction Bottle (Box of 100)	81 000 51

ACCESSORIES	PART NUMBER
Instrument Tray Kit	81 101 73
Pass–Through Drawer Tray	81 101 11
Gas Cylinder Guard Assembly Kit	81 501 70
Air Hose Assembly, USA (10 ft)	78 464 10
Air Hose Assembly, Black, European (10 ft)	78 466 00
Oxygen Hose Assembly, USA (10 ft)	78 465 10
Oxygen Hose Assembly, White, European (10 ft)	78 466 01
X–Ray Tray	81 100 44
Monitor Shelf	81 001 52
Infusion Pump/I.V. Pole	81 001 53

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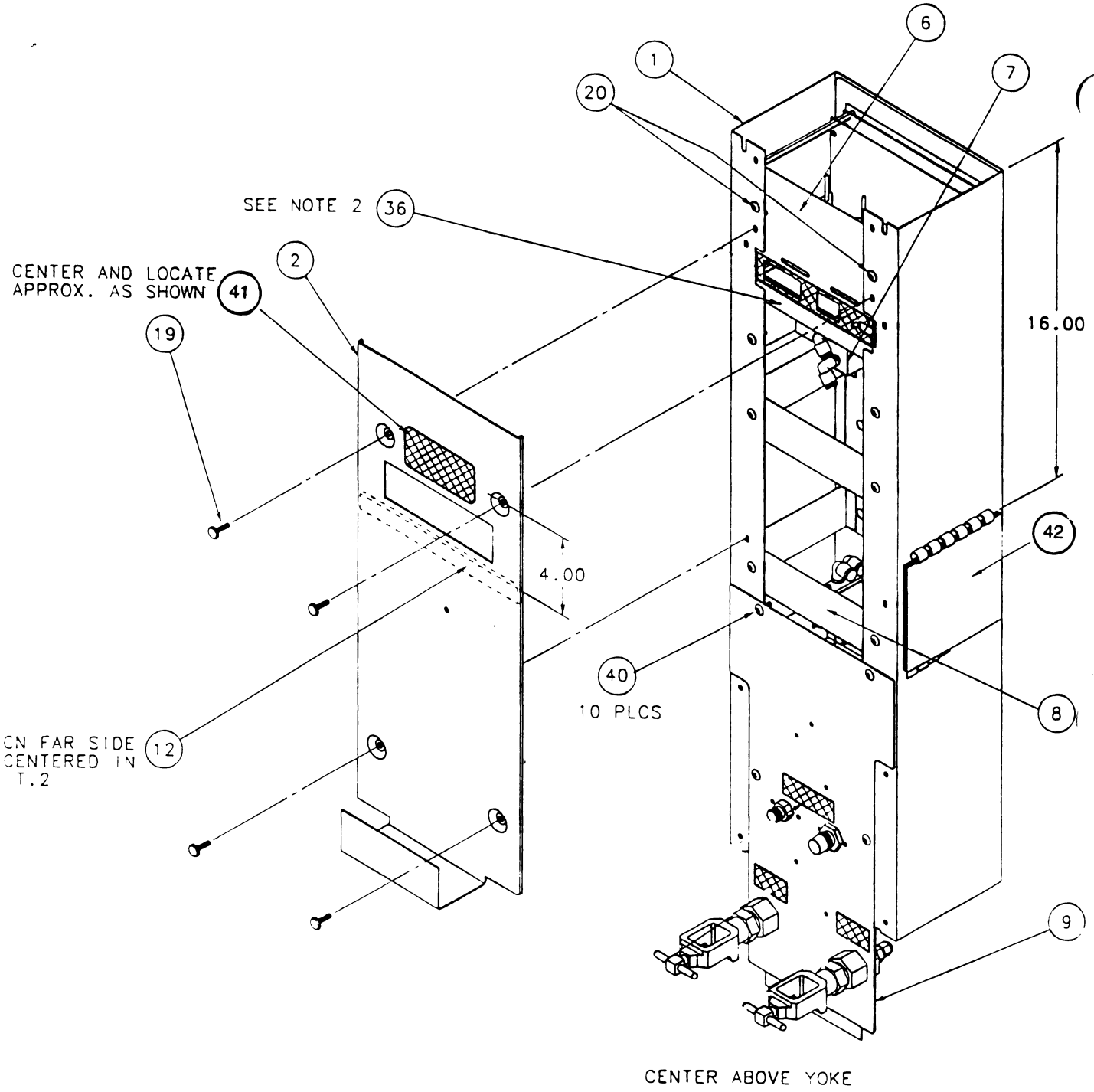


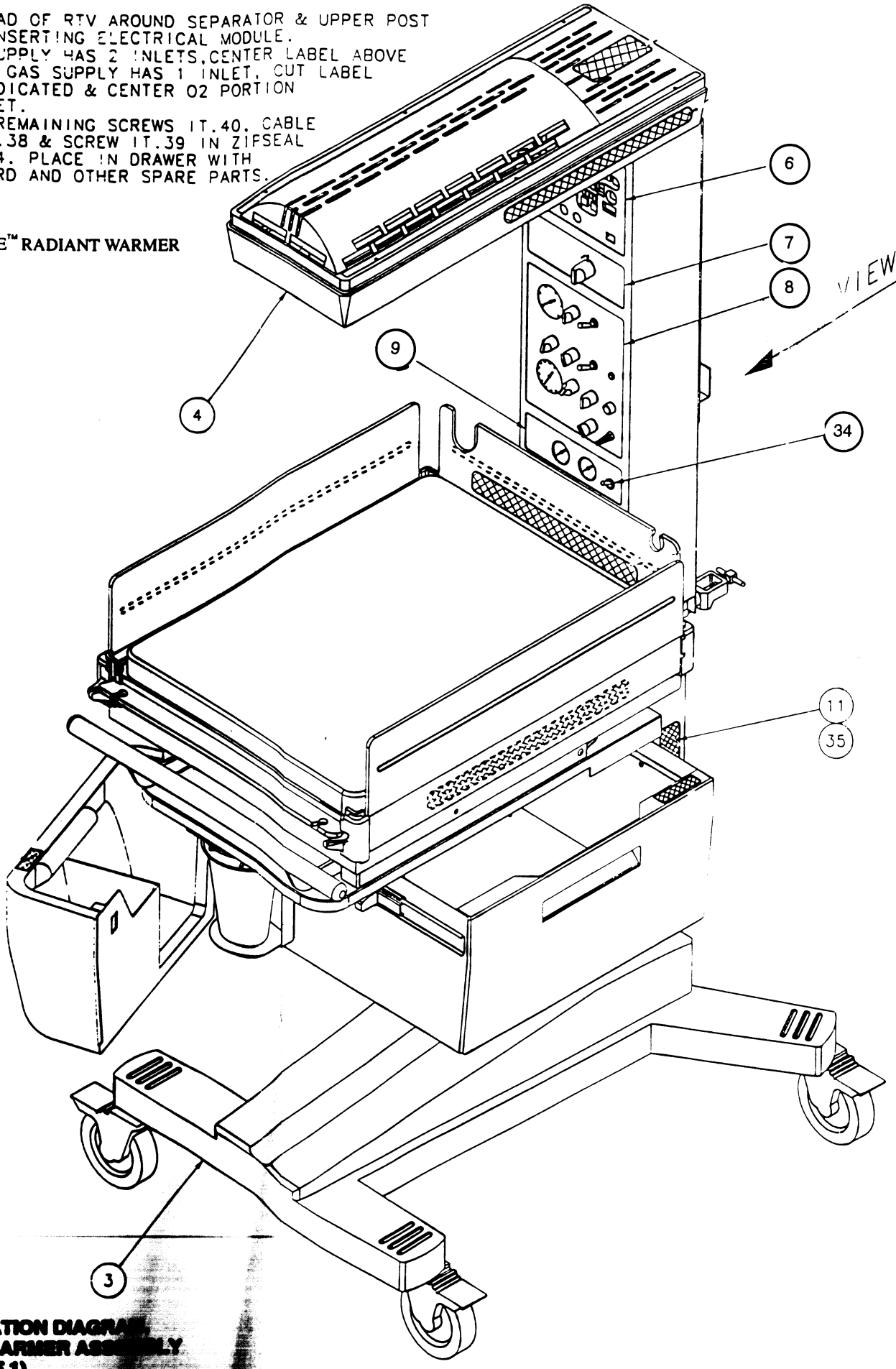
VIEW A

WITH BACK
COVER REMOVED

NOTES:

2. ADD A BEAD OF RTV AROUND SEPARATOR & UPPER POST BEFORE INSERTING ELECTRICAL MODULE.
3. IF GAS SUPPLY HAS 2 INLETS, CENTER LABEL ABOVE BOTH. IF GAS SUPPLY HAS 1 INLET, CUT LABEL WHERE INDICATED & CENTER O2 PORTION OVER INLET.
4. PLACE 8 REMAINING SCREWS IT.40, CABLE CLAMP IT.38 & SCREW IT.39 IN ZIPSEAL BAG IT.24. PLACE IN DRAWER WITH POWER CORD AND OTHER SPARE PARTS.

RESUSCITAIRE™ RADIANT WARMER
PARTS LIST



GURE 6.1 PARTS LOCATION DIAGRAM
ISCITAIRE™ RADIANT WARMER ASSEMBLY
(SHEET 1 OF 1)

TABLE 6.1A RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, NO BLENDER PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		TANK	
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 RSV, NIST, 220/240V, ENG	81 003 80
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 RSV, DISS, 120V, SPN	81 113 71
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 RSV, DISS, 220/240V, SPN	81 113 81
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 RSV, DISS, 220/240V, ITL	81 113 84
		WALL	
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 PIPEL, DISS, 120, ENG	81 117 70
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 PIPEL, DISS, 120, SPN	81 117 71
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 PIPEL, DISS, 220/240V, SPN	81 117 81
		RESUSCITAIRE™ RAD WARM, W/O BLENDER W/O AUTOBREATH, O_2 PIPEL, DISS, 240V, ITL	81 117 84
1		POST, UPPER (order item 42 also)	81 000 02
2		COVER, UPPER POST (order item 41 also)	81 000 14
3	Refer to Table 6.2	CART ASSEMBLY, RESUSCITAIRE™ RADIANT WARMER	81 020 70
4	Refer to Table 6.10	WARMER HEAD ASSEMBLY, 120V	81 200 70
		WARMER HEAD ASSEMBLY, 220–240V	81 200 80
5		NOT USED	
6	Refer to Table 6.7	ELEC MODULE ASSY, RW 120V	81 300 70
		ELEC MODULE ASSY, RW 220–240V	81 300 80
7	Refer to Table 6.6	BLENDER BLANK ASSY, RESUSCITAIRE™ RADIANT WARMER	81 600 70
8	Refer to Table 6.8	RESUS MDL W/O AUTOBREATH, ENG	81 400 70

TABLE 6.1A RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, NO BLENDER PARTS LIST

(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
9	Refer to Table 6.4	GAS SUPPLY, O_2/PIPELINE, DISS	81 500 70
		GAS SUPPLY, O_2/W/RSV, DISS	81 500 80
		GAS SUPPLY, O_2/W/RSV, NIST	81 500 81
10		CABLE ASSY, AC PWR/LK, DOM 10FT	17 AZ1 04
		CABLE ASSY, AC PWR/LK, VDE 10FT	17 AZ2 04
11		LABEL, DATA TAG, SYSTEM	81 000 37
12		GASKET, REAR COVER	81 100 61
13		NOT USED	
14		NOT USED	
15		NOT USED	
16		NOT USED	
17		NOT USED	
18		NOT USED	
19		SCR, 10–32X3/4PN PH W/WSHR WHT	99 042 93
20		SCR, 8–32X3/4, TR PH SS	99 032 85
21		NOT USED	
22		HOSE, OXY, W/WING NUTS, WHITE, 10FT	68 507 30
		HOSE, OXY, NIST & MK4, WHITE, 10FT	68 507 50
		HOSE, OXY, W/WINGTYPE NUTS, 10FT	78 465 10
23		NOT USED	
24		NOT USED	
25		BREATHING CIRCUIT, DISPOSABLE	81 000 19
26		PROBE, TEMP, SKIN, DUAL, REUSABLE	81 300 05
27		GAS CYLINDER GUARD ASSY	81 501 70
28		NOT USED	
29		NOT USED	
30		NOT USED	
31		NOT USED	
32		NOT USED	
33		NOT USED	
34		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
35		TAPE, ADHESIVE TRANSFER (3M#909)	99 903 14
36		COMPOUND, RTV SILRBR,WHT (DC781)	99 900 61
37		NOT USED	

TABLE 6.1A RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, NO BLENDER PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
38		CLAMP, CABLE,LOOP TY, NYL,.25ID	17 062 26
		CLAMP, CABLE,LOOP TY, NYL,.35ID	17 725 64
39		SCR, 8–32X3/8 TR PH SS	99 031 38
40		SCR, 10–32X1/2 TR PH SS NY STP	99 042 07
41		LABEL, CAUT SHK HAZ HI PRES, ENG	81 000 30
		LABEL, CAUT SHK HAZ HI PRES, SPN	81 000 31
		LABEL, CAUT SHK HAZ HI PRES, ITL	81 000 34
42		OPERATING INSTR PLACARD, RW ENG	81 990 27

TABLE 6.1B RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, AUTOBREATH, BLENDER PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		TANK	
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/AUTOBREATH, O_2/AIR RSV, NIST, 220/240V,ENG	81 000 80
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/AUTOBREATH, O_2/AIR RSV, DISS, 220/240V,SPN	81 110 81
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/AUTOBREATH, O_2/AIR RSV, DISS, 220/240V,ITL	81 110 84
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/AUTOBREATH, O_2/AIR RSV, DISS,120V,ENG	81 110 70
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/AUTOBREATH, O_2/AIR RSV, DISS,120V,SPN	81 110 71
1		POST, UPPER (order item 42 also)	81 000 02
2		COVER, UPPER POST (order item 41 also)	81 000 14
3	Refer to Table 6.2	CART ASSEMBLY, RESUSCITAIRE™ RADIANT WARMER	81 020 70
4	Refer to Table 6.10	WARMER HEAD ASSEMBLY, 120V	81 200 70
		WARMER HEAD ASSEMBLY, 220–240V	81 200 80
5		NOT USED	
6	Refer to Table 6.7	ELEC MODULE ASSY, RW 120V	81 300 70
		ELEC MODULE ASSY, RW 220–240V	81 300 80
7	Refer to Table 6.6	BLENDER ASSY, RESUSCITAIRE™ RADIANT WARMER	81 600 80
8	Refer to Table 6.9	RESUS MDL W/AUTOBREATH, ENG	81 400 80
9	Refer to Table 6.5	GAS SUPPLY, O_2/AIR W/RSV, DISS	81 500 85
		GAS SUPPLY, O_2/AIR W/RSV, NIST	81 500 86
10		CABLE ASSY, AC PWR/LK, DOM 10FT	17 AZ1 04

TABLE 6.1B RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, AUTOBREATH, BLENDER PARTS LIST

(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		CABLE ASSY, AC PWR/LK, VDE 10FT	17 AZ2 04
11		LABEL, DATA TAG, SYSTEM	81 000 37
12		GASKET, REAR COVER	81 100 61
13		NOT USED	
14		NOT USED	
15		NOT USED	
16		NOT USED	
17		NOT USED	
18		NOT USED	
19		SCR, 10–32X3/4PN PH W/WSHR WHT	99 042 93
20		SCR, 8–32X3/4, TR PH SS	99 032 85
21		HOSE, AIR, NIST & MA4, BLACK, 10FT	81 501 45
		HOSE, AIR, W/HAND NUTS, 10FT	81 501 50
		HOSE, AIR, W/HANDTIGHT NUTS, 10FT	78 464 10
22		HOSE, OXY, NIST & MK4, WHITE, 10FT	68 507 50
		HOSE, OXY, W/WINGNUTS, WHT, 10FT	68 507 30
		HOSE, OXY, W/WINGTYPE NUTS, 10FT	78 465 10
23		NOT USED	
24		NOT USED	
25		BREATHING CIRCUIT, DISPOSABLE	81 000 19
26		PROBE, TEMP, SKIN, DUAL, REUSABLE	81 300 05
27		GAS CYLINDER GUARD ASSY	81 501 70
28		NOT USED	
29		NOT USED	
30		NOT USED	
31		NOT USED	
32		NOT USED	
33		NOT USED	
34		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
35		TAPE, ADHESIVE TRANSFER (3M#909)	99 903 14
36		COMPOUND, RTV SILRBR,WHT (DC781)	99 900 61
37		NOT USED	

TABLE 6.1B RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, AUTOBREATH, BLENDER PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
38		CLAMP, CABLE,LOOP TY, NYL,.25ID	17 062 26
		CLAMP, CABLE,LOOP TY, NYL,.375ID	17 725 64
39		SCR, 8–32X3/8 TR PH SS	99 031 38
40		SCR, 10–32X1/2 TR PH SS NY STP	99 042 07
41		LABEL, CAUT SHK HAZ HI PRES, ENG	81 000 30
		LABEL, CAUT SHK HAZ HI PRES, SPN	81 000 31
		LABEL, CAUT SHK HAZ HI PRES, ITL	81 000 34
42		OPERATING INSTR PLACARD, RW ENG	81 990 27

TABLE 6.1C RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, AUTOBREATH, NO BLENDER PARTS LIST

(Sheet 1 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		TANK	
		RESUSCITAIRE™ RAD WARM, W/O BLENDER AND W/AUTOBREATH, O_2 RSV, NIST,220/240V, ENG	81 002 80
1		POST, UPPER (order item 42 also)	81 000 02
2		COVER, UPPER POST (order item 41 also)	81 000 14
3	Refer to Table 6.2	CART ASSEMBLY, RESUSCITAIRE™ RADIANT WARMER	81 020 70
4	Refer to Table 6.10	WARMER HEAD ASSEMBLY, 220–240V	81 200 80
5		NOT USED	
6	Refer to Table 6.7	ELEC MODULE ASSY, RW 220–240V	81 300 80
7	Refer to Table 6.6	BLENDER BLANK ASSY, RESUSCITAIRE™ RADIANT WARMER	81 600 70
8	Refer to Table 6.9	RESUS MDL W/AUTOBREATH, ENG	81 400 80
9	Refer to Table 6.4	GAS SUPPLY, O_2/W/RSV, NIST	81 500 81
10		CABLE ASSY, AC PWR/LK, VDE 10FT	17 AZ2 04
11		LABEL, DATA TAG, SYSTEM	81 000 37
12		GASKET, REAR COVER	81 100 61
13		NOT USED	
14		NOT USED	
15		NOT USED	
16		NOT USED	
17		NOT USED	
18		NOT USED	
19		SCR, 10–32X3/4PN PH W/WSHR WHT	99 042 93
20		SCR, 8–32X3/4, TR PH SS	99 032 85
21		NOT USED	
22		HOSE, OXY, NIST & MK4, WHITE, 10FT	68 507 50

TABLE 6.1C RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, AUTOBREATH, NO BLENDER PARTS LIST

(Sheet 2 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
23		NOT USED	
24		NOT USED	
25		BREATHING CIRCUIT, DISPOSABLE	81 000 19
26		PROBE, TEMP, SKIN, DUAL, REUSABLE	81 300 05
27		GAS CYLINDER GUARD ASSY	81 501 70
28		NOT USED	
29		NOT USED	
30		NOT USED	
31		NOT USED	
32		NOT USED	
33		NOT USED	
34		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
35		TAPE, ADHESIVE TRANSFER (3M#909)	99 903 14
36		COMPOUND, RTV SILRBR,WHT (DC781)	99 900 61
37		NOT USED	
38		CLAMP, CABLE,LOOP TY, NYL,.25ID	17 062 26
39		SCR, 8–32X3/8 TR PH SS	99 031 38
40		SCR, 10–32X1/2 TR PH SS NY STP	99 042 07
41		LABEL, CAUT SHK HAZ HI PRES, ENG	81 000 30
42		OPERATING INSTR PLACARD, RW ENG	81 990 27

TABLE 6.1D RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, BLENDER PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		TANK	
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR RSV, NIST, 220/240V,ENG	81 001 80
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR RSV, DISS, 220/240V,ITL	81 011 84
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR RSV, DISS, 220/240V,SPN	81 111 81
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR RSV, DISS, 120V,SPN	81 111 70
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR RSV, DISS, 120V,SPN	81 111 71
		WALL	
		RESUSCITAIRE™ RAD WARM, W/BLENDER, W/O AUTOBREATH, O_2/AIR PIPL, DISS, 120V,ENG	81 115 70
1		POST, UPPER (order item 42 also)	81 000 02
2		COVER, UPPER POST (order item 41 also)	81 000 14
3	Refer to Table 6.2	CART ASSEMBLY, RESUSCITAIRE™ RADIANT WARMER	81 020 70
4	Refer to Table 6.10	WARMER HEAD ASSEMBLY, 120V	81 200 70
		WARMER HEAD ASSEMBLY, 220–240V	81 200 80
5		NOT USED	
6	Refer to Table 6.7	ELEC MODULE ASSY, RW 120V	81 300 70
		ELEC MODULE ASSY, RW 220–240V	81 300 80
7	Refer to Table 6.6	BLENDER ASSY, RESUSCITAIRE™ RADIANT WARMER	81 600 80
8	Refer to Table 6.8	RESUS MDL W/O AUTOBREATH, ENG	81 400 70
9	Refer to Table 6.5	GAS SUPPLY, O_2/AIR PIPELINE, DISS	81 500 75
		GAS SUPPLY, O_2/AIR W/RSV, DISS	81 500 85
		GAS SUPPLY, O_2/AIR W/RSV, NIST	81 500 86
10		CABLE ASSY, AC PWR/LK, VDE 10FT	17 AZ1 04
		CABLE ASSY, AC PWR/LK, VDE 10FT	17 AZ2 04
11		LABEL, DATA TAG, SYSTEM	81 000 37

TABLE 6.1D RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, BLENDER PARTS LIST

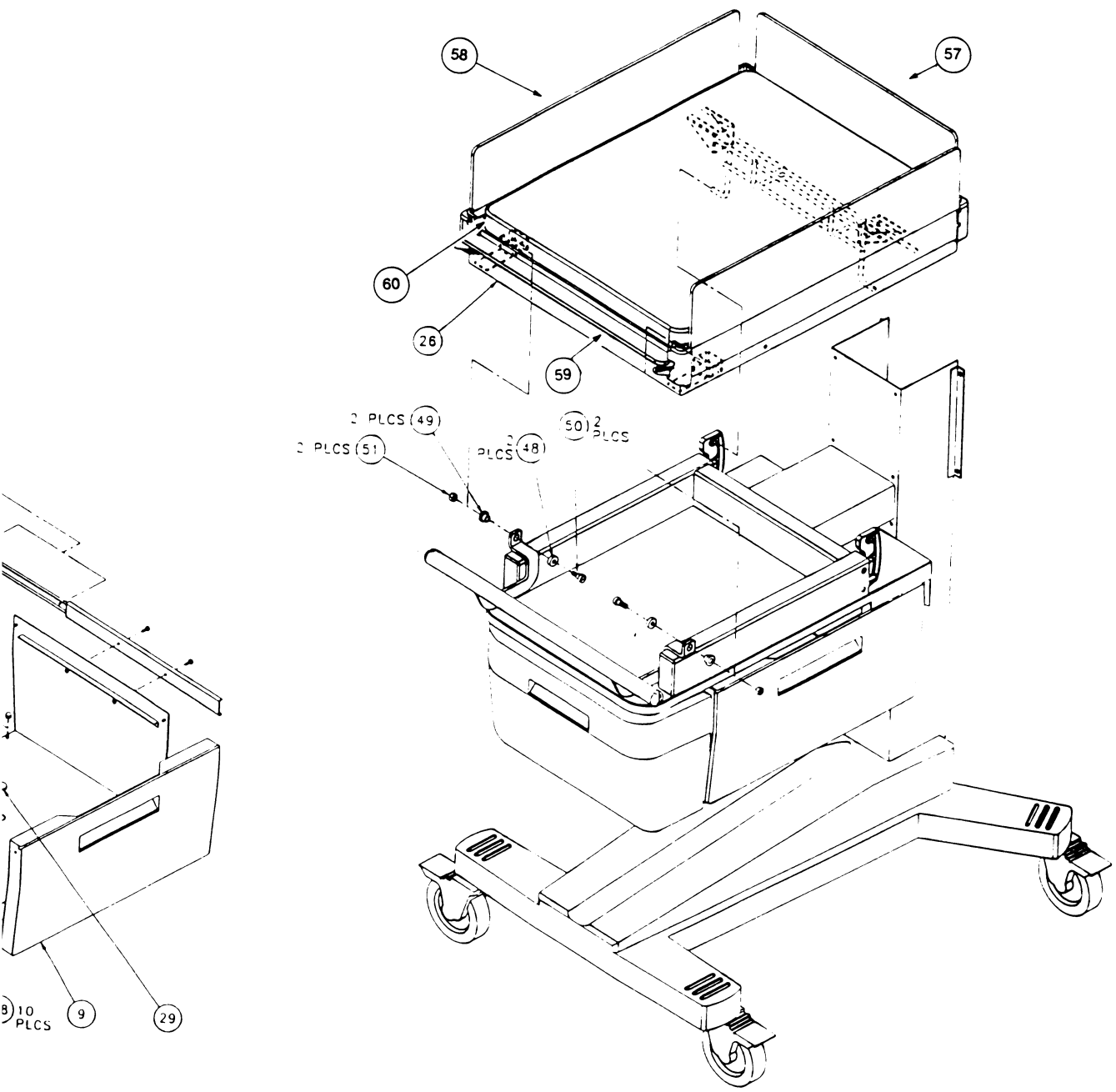
(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
12		GASKET, REAR COVER	81 100 61
13		NOT USED	
14		NOT USED	
15		NOT USED	
16		NOT USED	
17		NOT USED	
18		NOT USED	
19		SCR, 10–32X3/4PN PH W/WSHR WHT	99 042 93
20		SCR, 8–32X3/4, TR PH SS	99 032 85
21		HOSE, AIR, NIST & MA4, BLACK, 10FT	81 501 45
		HOSE, AIR, NIST & MA4, BLACK, 10FT	81 501 50
		HOSE, AIR,W/HAND NUTS, BLACK, 10FT	78 464 10
22		HOSE, OXY, W/WING NUTS, WHITE, 10FT	68 507 30
		HOSE, OXY, NIST & MK4, WHITE, 10FT	68 507 50
		HOSE, AIR,W/WINGTYPE NUTS, 10FT	78 465 10
23		NOT USED	
24		NOT USED	
25		BREATHING CIRCUIT, DISPOSABLE	81 000 19
26		PROBE, TEMP, SKIN, DUAL, REUSABLE	81 300 05
27		GAS CYLINDER GUARD ASSY	81 501 70
28		NOT USED	
29		NOT USED	
30		NOT USED	
31		NOT USED	
32		NOT USED	
33		NOT USED	
34		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
35		TAPE, ADHESIVE TRANSFER (3M#909)	99 903 14
36		COMPOUND, RTV SILRBR,WHT (DC781)	99 900 61
37		NOT USED	
38		CLAMP, CABLE,LOOP TY, NYL,.25ID	17 062 26
		CLAMP, CABLE,LOOP TY, NYL,.375ID	17 725 64

TABLE 6.1D RESUSCITAIRE™ RADIANT WARMER ASSEMBLY, W/O AUTOBREATH, BLENDER PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
39		SCR, 8–32X3/8 TR PH SS	99 031 38
40		SCR, 10–32X1/2 TR PH SS NY STP	99 042 07
41		LABEL, CAUT SHK HAZ HI PRES, ENG	81 000 30
		LABEL, CAUT SHK HAZ HI PRES, SPN	81 000 31
		LABEL, CAUT SHK HAZ HI PRES, ITL	81 000 34
42		OPERATING INSTR PLACARD, RW ENG	81 990 27


58
57
60
26
59
2 PLCS (49)
2 PLCS (51)
2 PLCS (48)
(50) 2 PLCS
10 PLCS
9
29

NOTE :
1.11.24 NOT SHOWN, TO BE PLACED IN DRAWER.

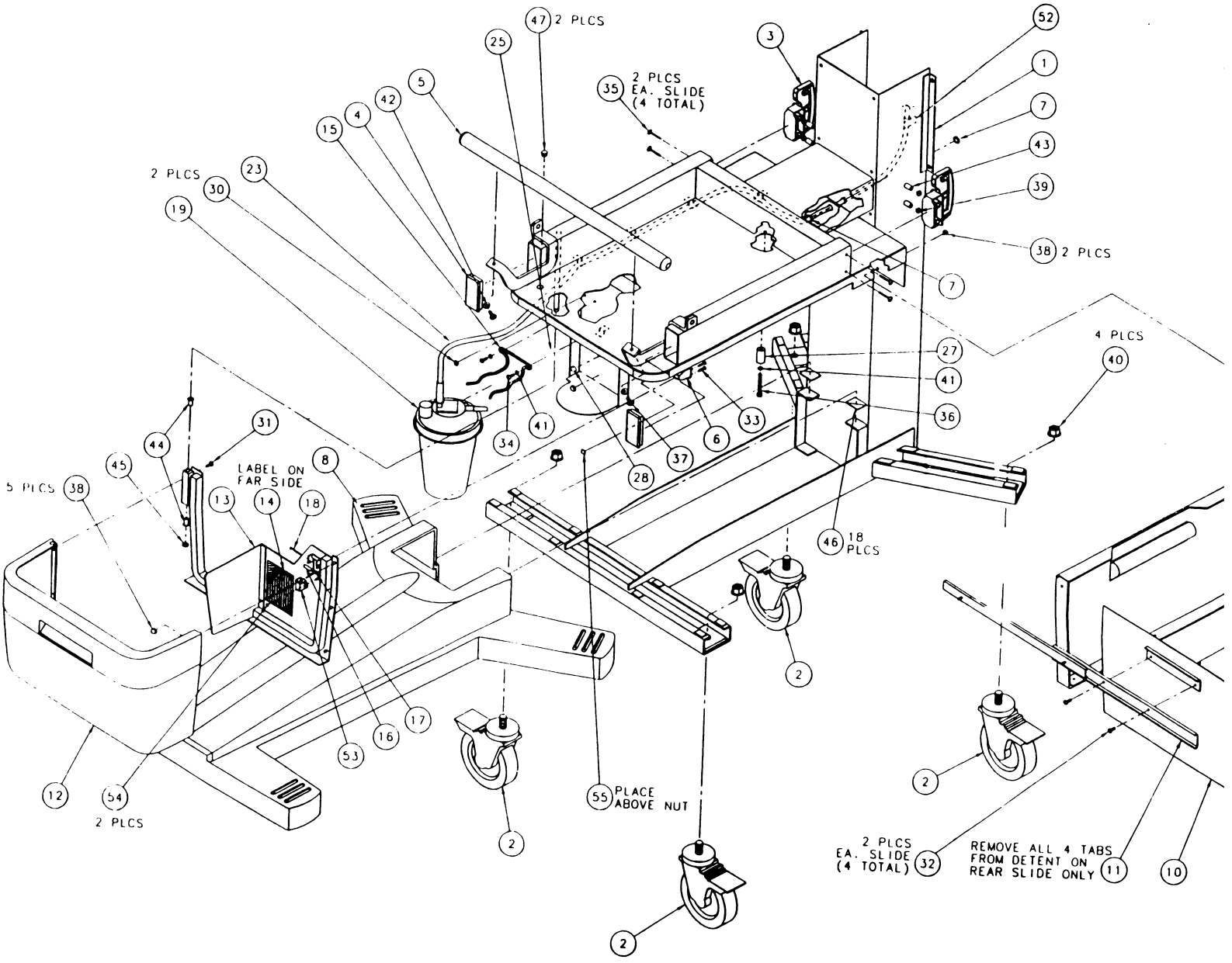


FIGURE 6.2 PARTS LOCATION DIAGRAM, SUSCITAIRE™ RADIANT WARMER CART ASSEMBLY (SHEET 1 OF 1)

TABLE 6.2 RESUSCITAIRE™ RADIANT WARMER CART ASSEMBLY, PARTS LIST

(Sheet 1 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		CART ASSEMBLY	81 020 70
1		BASE WELDMENT	81 000 01
2		CASTER, SWVL, 5.0 W/BK, GRA, URTH	68 416 16
3		BRACKET, TILT ADJUST, PLSTC, MACH	78 160 05
4		CAP, TUBING, MODIFIED	78 071 38
5		HANDLE, FRONT, FRAME SUPPORT	81 000 09
6		BLOCK, LATCH, RESUS COMPART	81 101 27
7		BUSHING, SNAP–IN,.38ID .50 HOLE	17 062 42
8		COVER, BASE	81 000 04
9		COVER, DRAWER (order item 61 also)	81 101 10
10		BODY, DRAWER	81 101 13
11		SLIDE, PASS THRU DRAWER, PAIR	81 101 12
12		COVER, RESUS COMPART (order item 64 also)	81 101 09
13		PLATE, RESUS COVER (WELDMENT)	81 101 14
14		LABEL, SUCTION FLOW	81 101 23
15		HOLDER, SUCTION BOTTLE	81 000 03
16		TUBING, SEBS,.12ID X .770 LG	68 510 17
17		TUBING, TEFLON, .09ID,.008W,.44L	68 510 46
18		SHAFT, ROLLER	68 510 20
19		BOTTLE, SUCTION, 800 CC, MARKED	81 001 15
20		NOT USED	
21		NOT USED	
22		NOT USED	
23		TUBING, SUCT W/END .25ID 66 .0 LG	81 001 17
24		TUBING, SUCT W/END .25ID 6' LG	81 001 16
25		NOT USED	
26		BASSINET ASSEMBLY (includes items 56. 57, 58, 59 and 60)	81 100 80
27		BUMPER,.6250DX1/4IDX1.0LG	81 101 16
28		BUMPER,CLR POLYURTH, SELF ADH	78 293 10
29		PLUG BUTTON, NYLON, 0.88 HOLE	78 161 20
30		NUT, HEX, 8–32 KEPS S CA	99 106 32
31		SCR, 8–32X3/8 TR PH SS	99 031 38
32		SCR, 8–32X3/8 TR PH SS NYLOK	99 031 52

TABLE 6.2 RESUSCITAIRE™ RADIANT WARMER CART ASSEMBLY, PARTS LIST

(Sheet 2 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
33		SCR, 8–32X1/2 FL PH SS	99 032 09
34		SCR, 10–32X1/2 TR PH SS NYLOK	99 042 05
35		SCR, 10–32X1.25 TR PH SS	99 044 06
36		SCR, 10–32X2.00 CP HX SS	99 045 24
37		SCR, 1/4–20X5/8 CP HX S ZI	99 056 63
38		NUT, ACORN, 8–32 SS	99 106 21
39		NUT, HEX, 10–32 FLX S ZI	99 107 38
40		NUT, HEX, FLG, SLFLKG, 1/2–13 S CA	99 113 25
41		WSHR, FL, #10 SS (0.62 THK)	99 123 62
42		WSHR, LK, SP, 1/4 S ZI	99 125 50
43		SPACER, .257IDX.38ODX.38LG NYLON	99 125 65
44		BEARING, FLG, NYLINER, .313 ID	81 100 62
45		RING,RTNG,EXT,SS(WAL5133–31–H)	99 181 70
46		TAPE,ACRL FOAM,1.0W .50L .045	99 903 13
47		PLUG, BUTTON..687 DIA MTG HOLE	81 101 34
48		WSHR, FL, .50ID .88OD .25T ACTL	81 100 56
49		WSHR, SHLDR, .375ID 1.00D .556 ACT	81 100 57
50		SCR, SHLDR, 5/16–18 SL HD SS	81 100 58
51		NUT, HEX 5/16–18 KEPS S CA	99 110 04
52		CLIP, PLSTC, SNAP, SLFADH, 0.38 ID	78 163 40
53		CATCH, NYLATCH ROLLER	81 100 63
54		NUT, HE, 4–40 KEPS S ZI	99 103 33
55		GASKET, PVC FM, .50W X .50 LG	81 100 60
56	Refer to Table 6.3	BASSINET SUB–ASSEMBLY	81 100 70
57		REAR PANEL ASSEMBLY (order item 63 also)	81 100 40
58		SIDE ASSEMBLY	81 100 41
59		FRONT PANEL ASSEMBLY	81 100 42
60		MATTRESS ASSY, CNDCT, W/XRAY PNL (order item 62 also)	78 162 19
61		LABEL, LOAD LIMIT, 10LB, 4.5 KG	81 101 19
62		LABEL, WARNING, SIDE/END PNL, ENG LABEL, WARNING, SIDE/END PNL, SPN LABEL, WARNING, SIDE/END PNL, ITL	78 162 56 78 162 57 78 162 63
63		LABEL, CAUT SHK HAZ, TOP COV, ENG LABEL, CAUT SHK HAZ, TOP COV, SPN LABEL, CAUT SHK HAZ, TOP COV, ITL	81 000 40 81 000 41 81 000 44
64		LABEL, LOAD LIMIT, 5LB, 2.2 KG	81 101 18

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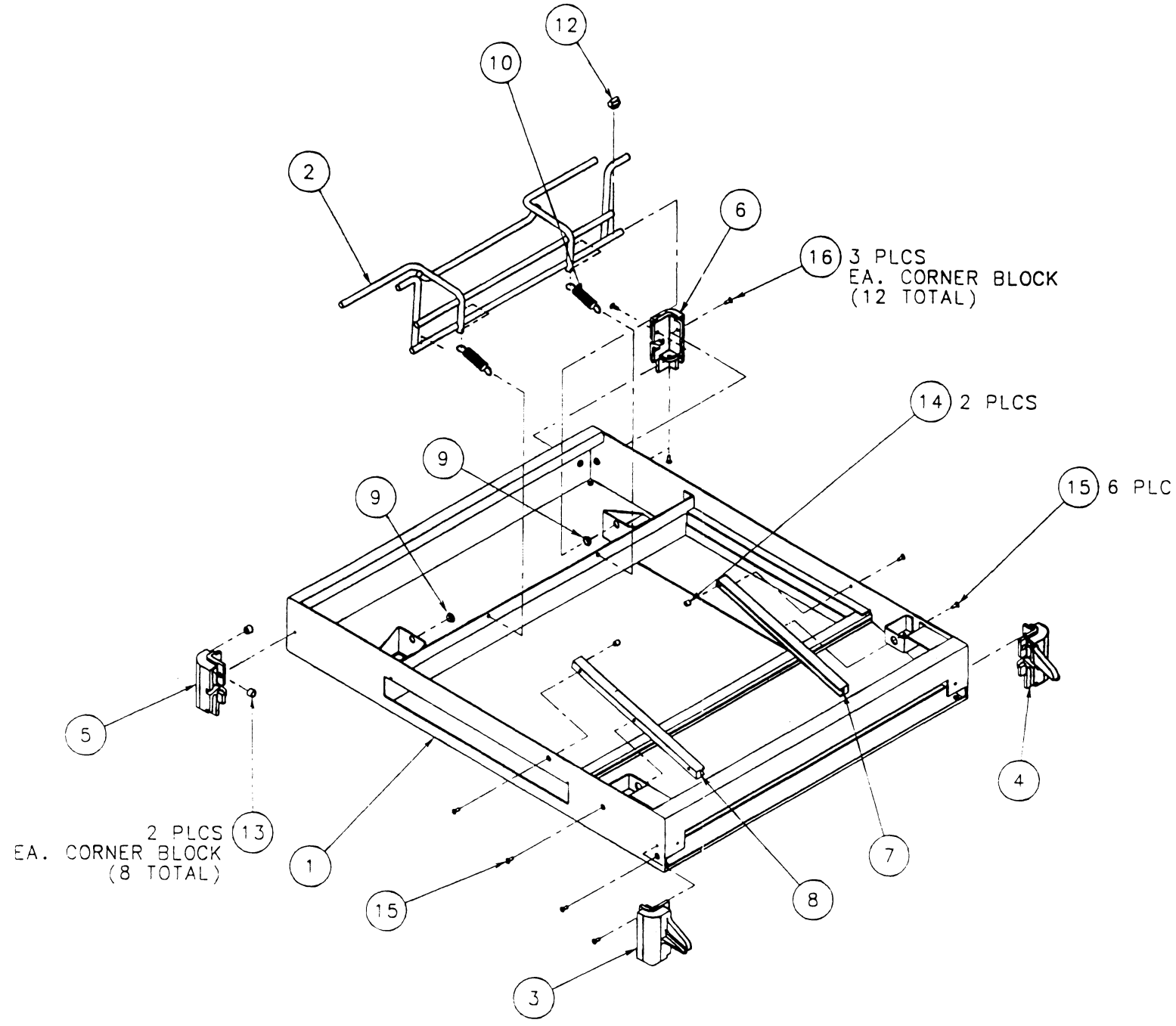

FIGURE 6.3 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER BASSINET SUB–ASSEMBLY (SHEET 1 OF 1)

TABLE 6.3 RESUSCITAIRE™ RADIANT WARMER BASSINET SUB–ASSEMBLY, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		BASSINET SUB–ASSEMBLY	81 100 70
1		SUPPORT, MTRS, RESUS	81 100 09
2		HANDLE, BASSINET TILT	81 100 48
3		CORNER BLOCK, PANEL MTG, R FRONT	81 100 03
4		CORNER BLOCK, PANEL MTG, L FRONT	81 100 04
5		CORNER BLOCK, PANEL MTG, R REAR	81 100 46
6		CORNER BLOCK, PANEL MTG, L REAR	81 100 47
7		GUIDE, FRONT PANEL, LEFT	81 100 08
8		GUIDE, FRONT PANEL, RIGHT	81 100 45
9		BEARING, SPLIT, PLSTC,.3135 ID	78 155 66
10		SPRING, EXT, .50 OD, .055W, 1.75 LG	81 100 34
11		NOT USED	
12		CLIP, SPRING, .25–.31DIA X .50LG	78 162 65
13		TUBING, CLR PVC, 1/4 ID X .270 LG	08 136 03
14		TUBING, CLR PVC, 3/16 ID 0.27LG	22 025 49
15		SCR, 6–32X3/8 FL PH SS NYLOK	99 023 46
16		SCR, 6–32X1/2, FL PH SS	99 023 94

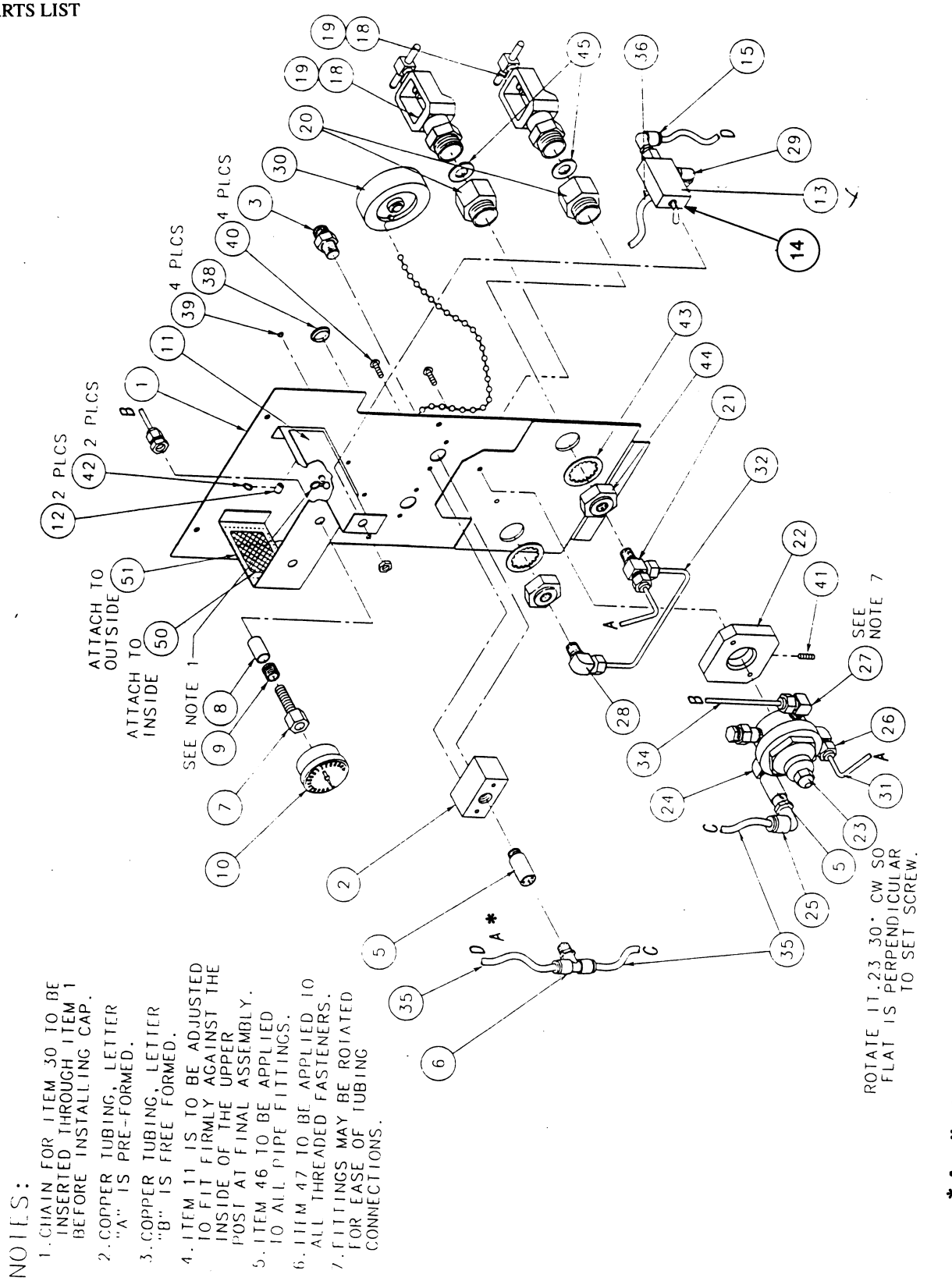
NOTES:
1. CHAIN FOR ITEM 30 TO BE INSERTED THROUGH ITEM 1 BEFORE INSTALLING CAP.
2. COPPER TUBING, LETTER "A" IS PRE-FORMED.
3. COPPER TUBING, LETTER "B" IS FREE FORMED.
4. ITEM 11 IS TO BE ADJUSTED TO FIT FIRMLY AGAINST THE INSIDE OF THE UPPER POST AT FINAL ASSEMBLY.
5. ITEM 46 TO BE APPLIED TO ALL PIPE FITTINGS.
6. ITEM 47 TO BE APPLIED TO ALL THREADED FASTENERS.
7. FITTINGS MAY BE ROTATED FOR EASE OF TUBING CONNECTIONS.
ROTATE IT 23 30° CW SO FLAT IS PERPENDICULAR TO SET SCREW.
ATTACH TO OUTSIDE
ATTACH TO INSIDE
SEE NOTE 1
SEE NOTE 7
2 PLCS
4 PLCS
* Applicable 81 500 70

FIGURE 6.4 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2 ASSEMBLY (SHEET 1 OF 1)

TABLE 6.4 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2 ASSEMBLY, PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		GAS SUPPLY, O_2 WALL ASSEMBLY	81 500 70
		GAS SUPPLY, O_2 W/TANK, DISS ASSEMBLY	81 500 80
		GAS SUPPLY, O_2 W/TANK, NIST ASSEMBLY	81 500 81
1		CHASSIS, GAS SUPPLY, W/CYL HOLES (order items 52 and 53 also)	***81 500 01
		CHASSIS, GAS SUPPLY, W/CYL HOLES (order item 53 also)	*81 500 00
2		MANIFOLD, PIPELINE (WALL)	81 500 06
3		CONNECTOR, MALE, 1/4NPT–02 DISS	****68 239 27
		ADAPTER, 1/4NPT M–02 NIST FEM	**68 239 36
4		NOT USED	
5		CHECK VALVE, 1/4 MNPT TO 1/4 MNPT	81 500 43
6		FITTING, BR TEE, .250DTBG1/4MNPT	***81 500 21
7		FITTING, BLKHD, SW.1250D, 1/8FNPT	***81 500 32
8		SPACER, .315ID .3750D .480LG	***81 500 03
9		SPRING, CMPR, .5800D, .045W,.875L	***81 500 08
10		GAUGE, PRESSURE, 0–4000 PSI	***81 500 36
11		BRACKET, PNEUMATIC VALVE	81 500 02
12		STANDOFF, 6–32ID, .250D, .25LG BR	99 116 91
13		VALVE, CONTROL, MINI 3–WAY	81 500 40
14		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
15		FITTING, ELB, .250TBG, 1/8MNPT	81 500 22
16		NOT USED	
17		NOT USED	
18		YOKE, OXYGEN (FOR CHECK VALVE)	***81 500 46
19		CHECK VALVE	***78 422 41
20		ADAPTER, YOKE, MALE TO FEMALE	***78 440 15
21		FITTING, RUNTEE, SW.190D, 1/8 MNPT	***81 500 33
22		BLOCK, MTG, PRESS. REGULATOR	***81 500 05
23		REGULATOR, 35PSI W/PRESS RELIEF	***81 500 39
24		ELBOW, STREET, 90 DEG, 1/4NPT M/F	***68 238 16
25		FITTING, ELBOW,.2500D, 1/4MNPT	81 500 23

* applicable to 81 500 70 only
** applicable to 81 500 80 only
*** applicable to 81 500 80, 81
**** applicable to 81 500 81, 70

TABLE 6.4 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2 ASSEMBLY, PARTS LIST

(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
26		FITTING, ELB, SW,.1870D, 1/4MNPT	***81 500 31
27		FITTING, ELB, SW,.1250D, 1.4MNPT	***81 500 29
28		FITTING, ELB,SW,.1870D, 1/8MNPT	***81 500 30
29		FITTING, ELB,.3120D TBG, 1/8MNPT	81 500 24
30		HANDLE, VALVE, REMOVABLE W/CHAIN	***75 407 38
31		TUBING, FORMED, 3/160D	***81 501 02
32		TUBING, FORMED, 3/160D	***81 501 03
33		NOT USED	
34		TUBING, COPPER,.1250D .03W 8.5L	***81 501 27
35		TUBING, POLY, .250DX.170IDX7.0LG	81 501 11
36		TUBING, POLY, 5/160D .19ID 11.0L	81 501 38
37		NOT USED	
38		PLUG, BUTTON, 5/8 DIA MTG HOLE	81 500 42
39		PLUG BUTTON, NYLON, 0.19 HOLE	78 155 27
40		SCR, 8–32X1/2, TR PH SS	99 031 99
41		SCR, 10–32X1/2 SE SK SS CP	***99 04 200
42		RING, RTNG, EXT, SS (WAL5555–25–H)	99 181 43
43		WSHR, LK, INT, 7/8 S CA	***99 129 85
44		NUT, HEX, JAM, 7/8–14 S ZI	***99 114 50
45		WSHR, FL,.234IDX.810DX.06T NYLN	***78 423 30
46		TAPE, PIPE JNT SEALER, TEFLON	99 900 26
47		LOCTITE, SCREWLOCK NO. 222	99 901 38
48		NOT USED	
49		NOT USED	
50		LABEL, BARCODE, GENERIC, MED	81 000 38
51		LABEL, DATA TAG	81 001 00
52		LABEL, OXY CYLINDER INLET, ENG	81 400 17
		LABEL, OXY CYLINDER INLET, SPN	81 400 18
		LABEL, OXY CYLINDER INLET, ITL	81 400 35

*** applicable to 81 500 80, 81

TABLE 6.4 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2 ASSEMBLY, PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
53		LABEL, PPLN INL WATER TRAP, ENG	81 500 91
		LABEL, PPLN INL WATER TRAP, SPN	81 500 92
		LABEL, PPLN INL WATER TRAP, ITL	81 500 95
54		OVERLAY , BLANK GAS FR PNL, RW ENG	81 500 10
		OVERLAY , BLANK GAS FR PNL, RW SPN	81 500 11
		OVERLAY , BLANK GAS FR PNL, RW SPN	81 500 14
		OVERLAY , O_2 GAS FR PNL, RW ENG	81 500 50
		OVERLAY , O_2 GAS FR PNL, RW SPN	81 500 51
		OVERLAY , O_2 GAS FR PNL, RW ITL	81 500 54

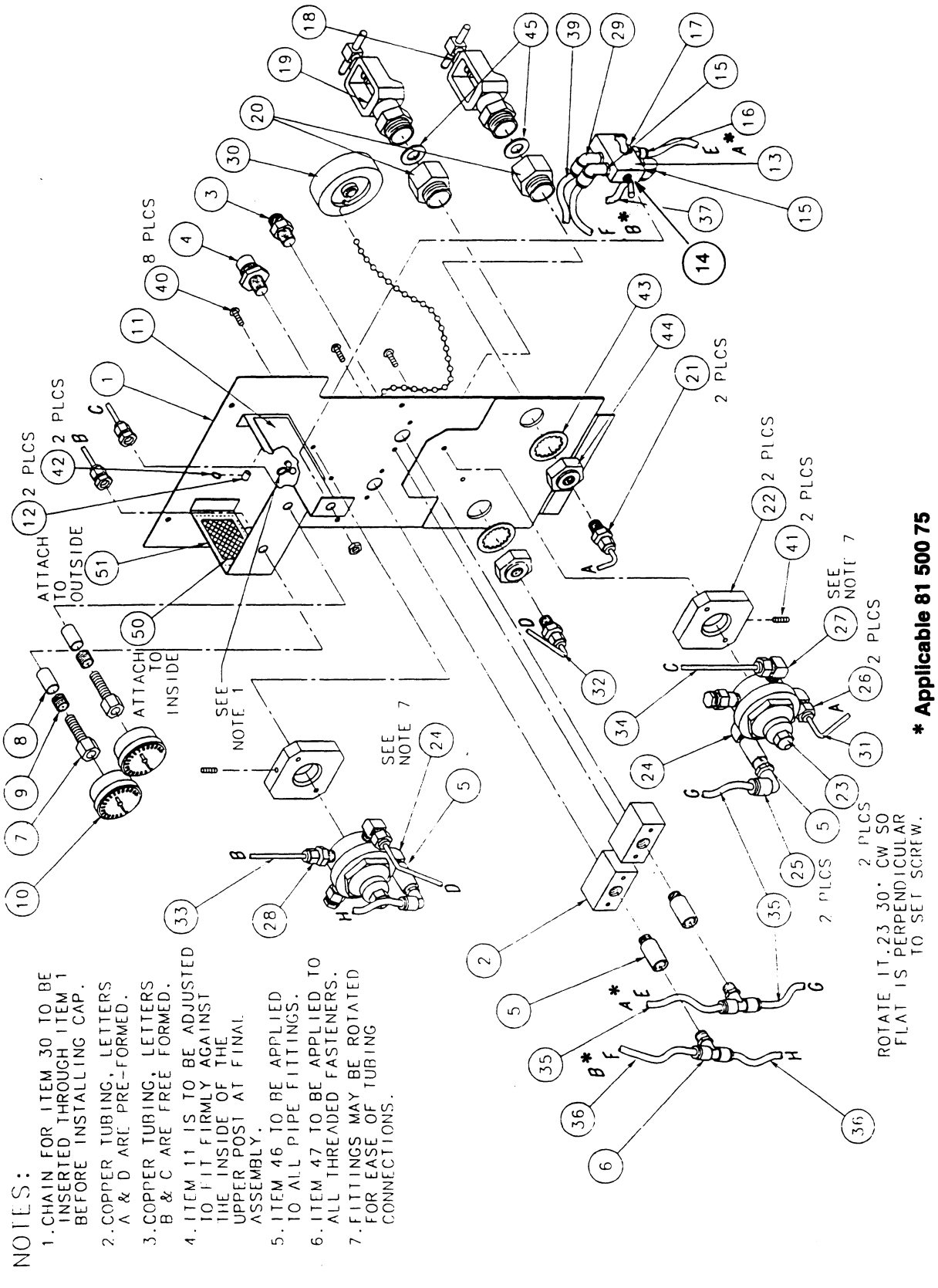
NOTES:
1. CHAIN FOR ITEM 30 TO BE INSERTED THROUGH ITEM 1 BEFORE INSTALLING CAP.
2. COPPER TUBING, LETTERS A & D ARE PRE-FORMED.
3. COPPER TUBING, LETTERS B & C ARE FREE FORMED.
4. ITEM 11 IS TO BE ADJUSTED TO FIT FIRMLY AGAINST THE INSIDE OF THE UPPER POST AT FINAL ASSEMBLY.
5. ITEM 46 TO BE APPLIED TO ALL PIPE FITTINGS.
6. ITEM 47 TO BE APPLIED TO ALL THREADED FASTENERS.
7. FITTINGS MAY BE ROTATED FOR EASE OF TUBING CONNECTIONS.
ATTACH TO OUTSIDE
ATTACH TO INSIDE
SEE NOTE 1
SEE NOTE 7
8 PLCS
2 PLCS
ROTATE IT 23 30° CW SO FLAT IS PERPENDICULAR TO SET SCREW.
* Applicable 81 500 75

FIGURE 6.5 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2/AIR ASSEMBLY (SHEET 1 OF 1)

TABLE 6.5 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2/AIR ASSEMBLY, PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		GAS SUPPLY, O_2/AIR WALL ASSEMBLY	81 500 75
		GAS SUPPLY, O_2/AIR W/TANK, DISS ASSEMBLY	81 500 85
		GAS SUPPLY, O_2 W/TANK, NIST ASSEMBLY	81 500 86
1		CHASSIS, GAS SUPPLY, W/CYL HOLES (order items 52 and 53 also)	***81 500 01
		CHASSIS, GAS SUPPLY, W/CYL HOLES (order item 53 also)	*81 500 00
2		MANIFOLD, PIPELINE (WALL)	81 500 06
3		CONNECTOR, MALE, 1/4NPT–O2 DISS	*****68 239 27
		ADAPTER, 1/4NPT M–02 NIST FEM	**68 239 36
4		FITTING, DISS, MED AIR, 1/4MNPT	****81 500 38
		ADAPTER, 1/4NPT M–AIR NIST FEM	**81 500 47
5		CHECK VALVE, 1/4MNPT TO 1/4MNPT	81 500 43
6		FITTING, BR TEE, .25ODTBG1/4MNPT	***81 500 21
7		FITTING, BLKHD, SW.125OD, 1/8FNPT	***81 500 32
8		SPACER, .315ID .3750OD .480LG	***81 500 03
9		SPRING, CMPR, .5800D, .045W,.875L	***81 500 08
10		GAUGE, PRESSURE, 0–4000 PSI	***81 500 36
11		BRACKET, PNEUMATIC VALVE	81 500 02
12		STANDOFF, 6–32ID, .250D, .25LG BR	99 116 91
13		VALVE, CONTROL, MINI 5–WAY	81 500 41
14		NUT, PNL MTG 15/32–32 BR NKL PL	81 100 64
15		FITTING, ELB, .250TBG, 1/8MNPT	81 500 22
16		FITTING, CONN,.250OD 1/8MNPT	81 500 25
17		PIPE PLUG, 1/8NPT, HEX SOC HD	78 456 08
18		YOKE, OXYGEN, MODIFIED	***81 500 44
19		YOKE, MEDICAL AIR, MODIFIED	***81 500 07
20		ADAPTER, YOKE, MALE TO FEMALE	***78 440 15
21		FITTING, CONN, SW,.187OD, 1/8MNPT	***81 500 28
22		BLOCK, MTG, PRESS. REGULATOR	***81 500 05

* applicable to 81 500 75, only
** applicable to 81 500 86, only
*** applicable to 81 500 85, 86
*****applicable to 81 500 75, 85

TABLE 6.5 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2/AIR W/RESERVE, ASSEMBLY PARTS LIST

(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
23		REGULATOR, 35PSI W/PRESS RELIEF	***81 500 39
24		ELBOW, STREET, 90 DEG, 1/4NPT M/F	***68 238 16
25		FITTING, ELBOW,.2500D, 1/4MNPT	81 500 23
26		FITTING, ELB, SW,.1870D, 1/4MNPT	***81 500 31
27		FITTING, ELB, SW,.1250D, 1.4MNPT	***81 500 29
28		FITTING, CONN, SW,.125OD, 1/4MNPT	***81 500 27
29		FITTING, ELB,.312OD TBG, 1/8MNPT	81 500 24
30		HANDLE, VALVE, REMOVABLE W/CHAIN	***75 407 38
31		TUBING, FORMED, 3/16OD	***81 501 00
32		TUBING, FORMED, 3/16OD	****81 501 01
33		TUBING, COPPER,.125OD .03W 7.0L	***81 501 26
34		TUBING, COPPER,.125OD .03W 8.5L	***81 501 27
35		TUBING, POLY, .250DX.170IDX7.0LG	81 501 11
36		TUBING, POLY, .250DX.170IDX12.0LG	81 501 12
37		TUBING, POLY, .250DX.170IDX21.0LG	81 501 13
38		NOT USED	
39		TUBING, POLY, 5/160D .19ID 7.5L	81 501 37
40		SCR, 8–32X1/2, TR PH SS	99 031 99
41		SCR, 10–32X1/2 SE SK SS CP	***99 042 00
42		RING, RTNG, EXT, SS (WAL5555–25–H)	99 181 43
43		WSHR, LK, INT, 7/8 S CA	***99 129 85
44		NUT, HEX, JAM, 7/8–14 S ZI	***99 114 50
45		WSHR, FL,.234IDX.810DX.06T NYLN	***78 423 30
46		TAPE, PIPE JNT SEALER, TEFLON	99 900 26
47		LOCTITE, SCREWLOCK NO. 222	99 901 38
48		NOT USED	
49		NOT USED	
50		LABEL, BARCODE, GENERIC, MED	81 000 38
51		LABEL, DATA TAG	81 001 00

*** applicable to 81 500 85, 86

TABLE 6.5 RESUSCITAIRE™ RADIANT WARMER GAS SUPPLY, O_2/AIR ASSEMBLY, PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
52		LABEL, AIR CYLINDER INLET, ENG	81 400 10
		LABEL, AIR CYLINDER INLET, SPN	81 400 11
		LABEL, AIR CYLINDER INLET, ITL	81 400 14
		LABEL, OXY CYLINDER INLET, ENG	81 400 17
		LABEL, OXY CYLINDER INLET, SPN	81 400 18
		LABEL, OXY CYLINDER INLET, ITL	81 400 35
53		LABEL, PPLN INL WATER TRAP, ENG	81 500 91
		LABEL, PPLN INL WATER TRAP, SPN	81 500 92
		LABEL, PPLN INL WATER TRAP, ITL	81 500 95
54		OVERLAY , BLANK GAS FR PNL, RW ENG	81 500 10
		OVERLAY , BLANK GAS FR PNL, RW SPN	81 500 11
		OVERLAY , BLANK GAS FR PNL, RW SPN	81 500 14
		OVERLAY , O_2/AIR GAS FR PNL, RW ENG	81 500 60
		OVERLAY , O_2/AIR GAS FR PNL, RW SPN	81 500 61
		OVERLAY , O_2/AIR GAS FR PNL, RW ITL	81 500 64

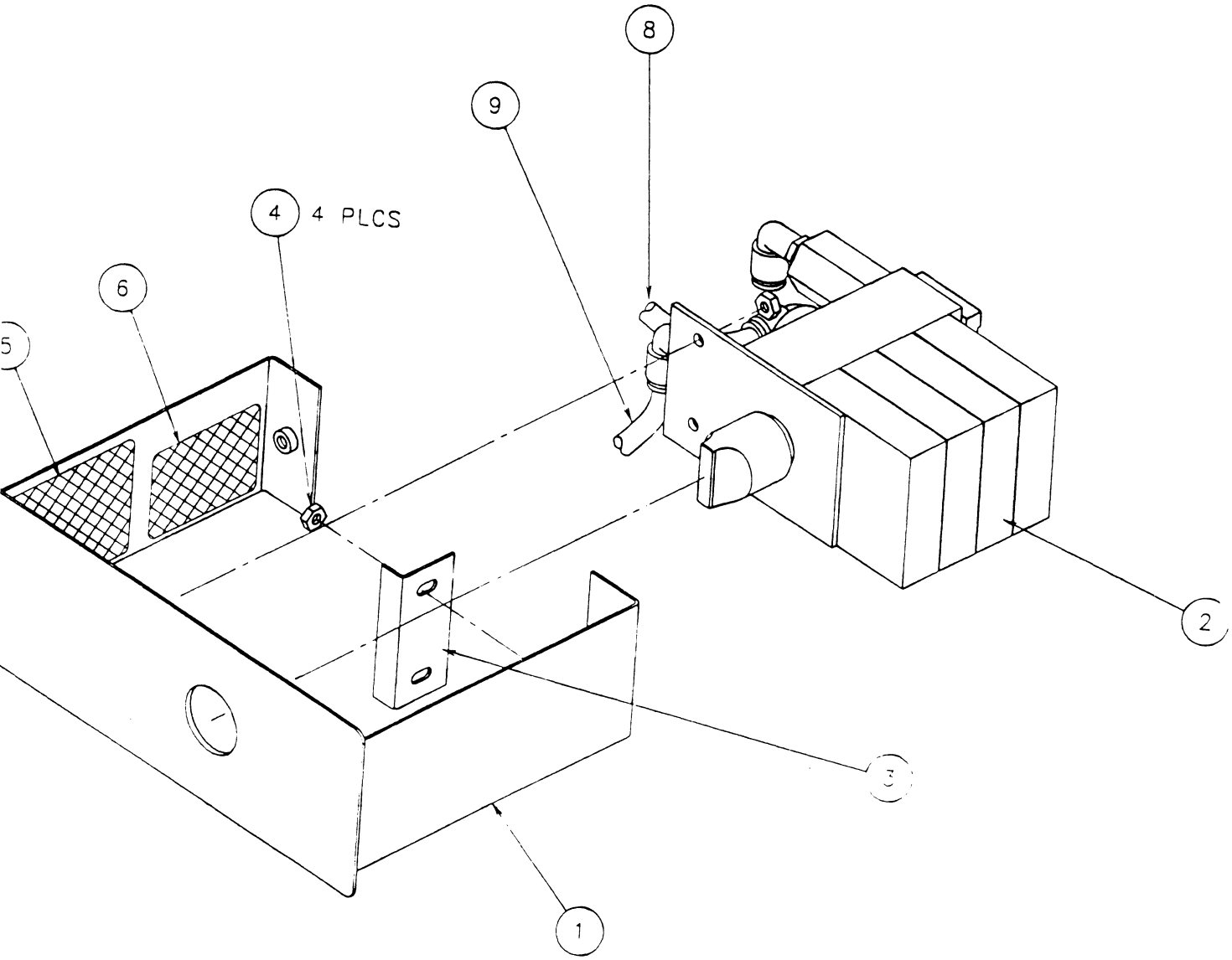

FIGURE 6.6 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER BLENDER ASSEMBLY (SHEET 1 OF 1)

TABLE 6.6 RESUSCITAIRE™ RADIANT WARMER BLENDER ASSEMBLY, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		BLENDER BLANK ASSEMBLY	81 600 70
		BLENDER ASSEMBLY	81 600 80
1		CHASSIS, MICROBLENDER	81 600 00
2		MICROBLENDER, LOWFLOW, NO BLEED	**81 600 40
3		CLIP, SUPPORT, MICROBLENDER	**81 600 06
4		NUT, HEX, 8–32 KEPS S CA	**99 106 32
5		LABEL, DATA TAG	**81 001 00
6		LABEL, BARCODE, GENERIC, MEDIUM	**81 000 38
7		TUBING, POLY, 5/160OD .19ID 4.50L	*81 501 36
8		TUBING, POLY, 5/160OD .19ID 11.0L	**81 501 38
9		TUBING, POLY, 5/160OD .19ID 14.0L	**81 501 39
10		OVERLAY, BLENDER FR PNL, RW ENG	81 600 27
		OVERLAY, BLENDER FR PNL, RW SPN	81 600 28
		OVERLAY, BLENDER FR PNL, RW ITL	81 600 31
		OVERLAY, BLN BLANK, FR PNL	81 600 34

* applicable to 81 600 70, only

** applicable to 81 500 80, only

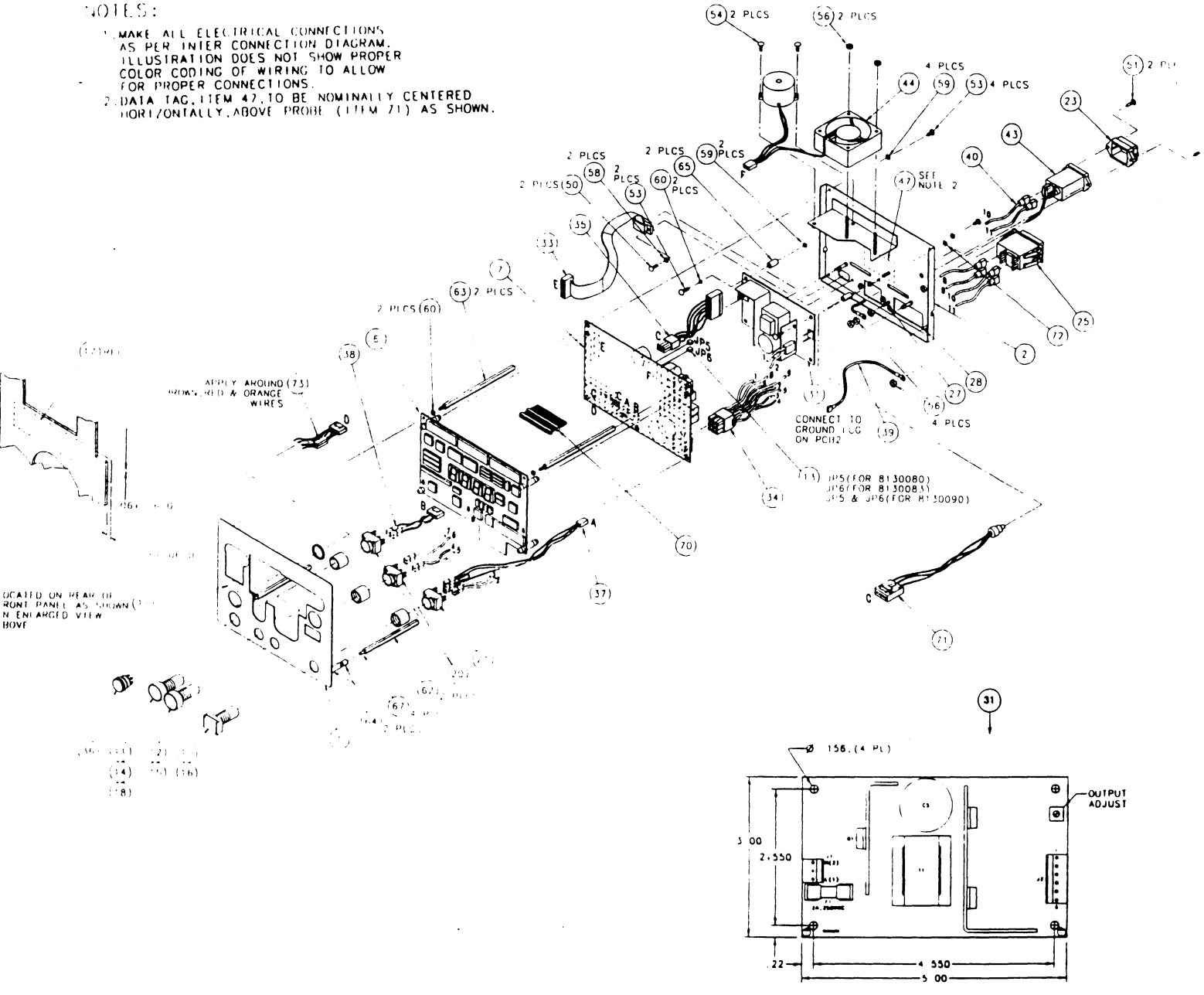
NOTES:
1. MAKE ALL ELECTRICAL CONNECTIONS AS PER INTER CONNECTION DIAGRAM. ILLUSTRATION DOES NOT SHOW PROPER COLOR CODING OF WIRING TO ALLOW FOR PROPER CONNECTIONS.
2. DATA TAG, ITEM 47, TO BE NOMINALLY CENTERED HORIZONTALLY, ABOVE PROBE (ITEM 71) AS SHOWN.
APPLY AROUND (73) WIRES
CONNECT TO GROUND LUG ON PCH2
JP5(FOR 8130080)
JP6(FOR 8130083)
JP5 & JP6(FOR 8130090)
OUTPUT ADJUST
Ø .156 (4 PL)
3.00
2.550
.22
4.550
5.00

FIGURE 6.7 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER ELECTRICAL MODULE ASSEMBLY (SHEET 1 OF 1)

TABLE 6.7 RESUSCITAIRE™ RADIANT WARMER ELECTRICAL MODULE ASSEMBLY, PARTS LIST

(Sheet 1 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		ELECTRICAL MODULE ASSEMBLY, 120V	81 300 70
		ELECTRICAL MODULE ASSEMBLY, 220–240V	81 300 80
1		PANEL, FRONT , ELECTRICAL MODULE	81 300 11
2		PANEL, REAR, ELECTRICAL MODULE (order item 74 also)	81 300 13
3		NOT USED	
4		NOT USED	
5		NOT USED	
6	Refer to Table 6.11	PCB1 ASSY, DISPLAY BOARD W/BABY MODE	81 307 75
7	Refer to Table 6.12	PCB2 ASSY, PWR & CONTROL BOARD	81 308 70
8		NOT USED	
9		NOT USED	
10		ACTUATOR, SW, PB, LIGHT, RECT, MNT.	17 683 01
11		ACTUATOR, SW, PB, LIGHT, RD, MOM.	17 683 08
12		ACTUATOR, SW, PB, LIGHT, RD, MNT.	17 683 09
13		CONN, JUMPER PLUG, FEM, 2PSN	17 731 98
14		LENS, RD, FL, XPARENT, KEY INSERT	17 682 98
15		LENS, RD, FL, XPARENT, LAMP INSERT	17 682 99
16		LENS, RECT, FLAT, XLUCENT, WHITE	17 683 32
17		INSULATOR, MYLAR, 2.25 X .38X .004	81 000 08
18		LAMP, INCAND, CLR, T–1 3/4, 14V	17 683 20
19		NOT USED	
20		CONTACT BLK, SW, PB, DPST, N.O.	17 683 11
21		CONTACT BLK, SW, PB, 3PST, 2NO/NC	17 683 18
22		NOT USED	
23		CORD LOCK ADAPTER	17 734 12
24		NOT USED	
25		CKT BRKR, DPST, 12.0A 250V CKT BRKR, DPST, 6.0A 250V	*81 300 64 **81 300 63
26		NOT USED	
27		LABEL, GROUND SYMBOL, PROTECTIVE	68 212 00
28		LABEL, GROUND SYMBOL, FUNCTIONAL	68 212 05

* applicable to 81 300 70, only

** applicable to 81 300 80, only

TABLE 6.7 RESUSCITAIRE™ RADIANT WARMER ELECTRICAL MODULE ASSEMBLY, PARTS LIST

(Sheet 2 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
29		NOT USED	
30		NOT USED	
31		POWER SUPPLY, SWITCHING, DC, 40W	81 300 15
32		NOT USED	
33		CABLE ASSY, DATA PORT	81 300 40
34		AC WIRE HARNESS ASSY	81 300 42
35		CABLE ASSY, D.C. POWER	81 300 44
36		CABLE ASSY, SKIN PROBE	81 300 46
37		CABLE ASSY, AUXILIARY SWITCH	81 300 48
38		CABLE ASSY, KEY PAD LOCK	81 300 50
39		WIRE ASSY, GROUND 2	81 300 52
40		CABLE ASSY, AC RCPT TO CKT BRKR	81 300 54
41		NOT USED	
42		NOT USED	
43		CONN ASSY, AC RCPT, MALE, 10A IEC	81 300 60
44		FAN ASSY	81 300 62
45		NOT USED	
46		NOT USED	
47		LABEL, DATA TAG	81 001 01
48		NOT USED	
49		NOT USED	
50		SCR, 4–40X1/4, TR PH SS	99 010 56
51		SCR, 4–40X7/16, TR PH SS	99 011 35
52		NOT USED	
53		SCR, 6–32X1/4, TR PH SS	99 022 72
54		SCR, 6–32X3/8, TR PH SS	99 023 26
55		NOT USED	
56		NUT, HEX, 6–32 CONL WSHR KEPS S	99 105 70
57		NOT USED	
58		WSHR, LK,INT, #4 SS	99 121 35
59		WSHR, LK EXT, #6 SS	99 122 20
60		WSHR, RIB SPRING S3 S ZI	99 999 72

TABLE 6.7 RESUSCITAIRE™ RADIANT WARMER ELECTRICAL MODULE ASSEMBLY, PARTS LIST

(Sheet 3 of 3)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
61		NOT USED	
62		STANDOFF, HEX, 6–32 M/F 4.13L SS	99 116 87
63		STANDOFF, HEX, 6–32 M/F 4.785L SS	99 116 88
64		STANDOFF, HNG6–32 ID.25OD1.00L SS	99 116 89
65		STANDOFF, 6–32ID,.25HX,.50L NYL	99 116 90
66		NOT USED	
67		LOCTITE, SCREWLOCK NO. 222	99 901 38
68		NOT USED	
69		NOT USED	
70		CONN, BD SPCR, ML DBL ROW 42 PSN	17 BS4 62
71		PROBE, AMBIENT TEMP	81 300 69
72		RING, RTNG, NAT 6100–37–ST–ZD	99 182 06
73		SUPPRESSOR, FERRITE 120 OHMS	17 585 58
74		LABEL, REAR PANEL, 120V ENG	81 301 32
		LABEL, REAR PANEL, 120V SPN	81 301 33
		LABEL, REAR PANEL, 220V/240V, ENG	81 301 35
		LABEL, REAR PANEL, 220V/240V, SPN	81 301 36
		LABEL, REAR PANEL, 220V/240V, ITL	81 301 39
75		OVERLAY, ELEC FR PNL, RW ENG	81 300 25
		OVERLAY, ELEC FR PNL, RW SPN	81 300 26
		OVERLAY, ELEC FR PNL, RW ITL	81 300 29

Diagram to be supplied.

FIGURE 6.8 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER RESUSCITATION MODULE (W/O THE AUTOBREATH INFANT RESUSCITATOR) ASSEMBLY (SHEET 1 OF 1)

TABLE 6.8 RESUSCITAIRE™ RADIANT WARMER RESUSCITATION MODULE ASSEMBLY WITHOUT THE AUTOBREATH INFANT RESUSCITATOR, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		RESUSCITATION MODULE ASSEMBLY, W/O AUTOBREATH	81 400 70
1		OVERLAY, W/O AUTO FR PNL, RW ENG	81 400 27
		OVERLAY, W/O AUTO FR PNL, RW SPN	81 400 28
		OVERLAY, W/O AUTO FR PNL, RW ITL	81 400 31

Diagram to be supplied.

FIGURE 6.9 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER RESUSCITATION MODULE (WITH THE AUTOBREATH INFANT RESUSCITATOR) ASSEMBLY (SHEET 1 OF 1)

TABLE 6.9 RESUSCITAIRE™ RADIANT WARMER RESUSCITATION MODULE ASSEMBLY WITH THE AUTOBREATH INFANT RESUSCITATOR, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		RESUSCITATION MODULE ASSEMBLY, WITH THE AUTOBREATH INFANT RESUSCITATOR	81 400 80
1		OVERLAY, AUTO FR PNL, RW ENG	81 400 20
		OVERLAY, AUTO FR PNL, RW SPN	81 400 21
		OVERLAY, AUTO FR PNL, RW ITL	81 400 24

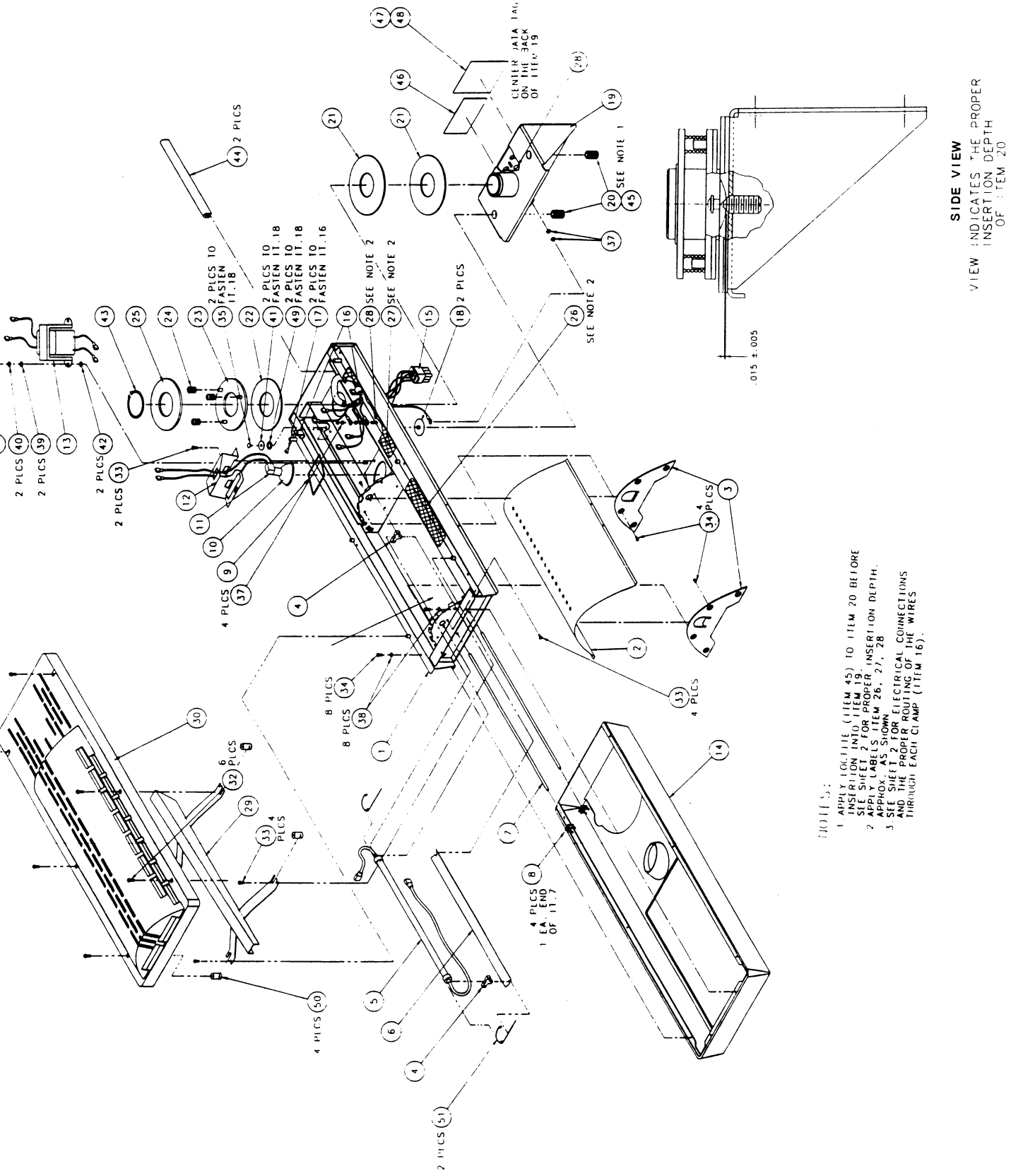
SIDE VIEW
VIEW INDICATES THE PROPER INSERTION DEPTH OF ITEM 20
.015 ± .005
SEE NOTE 1
SEE NOTE 2
2 PLCS
4 PLCS
8 PLCS
6 PLCS
NOTES:
1. APPLY LOCTITE (ITEM 45) TO ITEM 20 BEFORE INSERTION INTO ITEM 19.
SEE SHEET 2 FOR PROPER INSERTION DEPTH.
2. APPLY LABELS ITEM 26, 27, 28 APPROX. AS SHOWN
3. SEE SHEET 2 FOR ELECTRICAL CONNECTIONS AND THE PROPER ROUTING OF THE WIRES THROUGH EACH CLAMP (ITEM 16).

FIGURE 6.10 LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER HEAD ASSEMBLY (SHEET 1 OF 1)

TABLE 6.10 RESUSCITAIRE™ RADIANT WARMER HEAD ASSEMBLY, PARTS LIST

(Sheet 1 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
		WARMER HEAD ASSEMBLY, 120V	81 200 70
		WARMER HEAD ASSEMBLY, 220–240V	81 200 80
1		CHASSIS, WARMER HEAD	81 200 03
2		REFLECTOR, MAIN	81 200 08
3		BRACKET, PARABOLA	81 200 40
4		BRACKET, HEATER MOUNTING	81 200 42
5		HEATER ASSY, QUARTZ 120V	*81 202 70
		HEATER ASSY, QUARTZ 220–240V	**81 202 80
6		REFLECTOR, SECONDARY	81 200 24
7		ROD, HEATER GUARD	81 200 07
8		CLIP, RETAINING, 3/16 SHAFT	81 200 29
9		WINDOW, GLASS, SQUARE	78 260 36
10		LAMP, INCAND, QTZ–HALGN, 12V 50W	17 807 41
11		CONNECTOR ASSY, EXAM LIGHT	78 258 70
12		BRACKET, LAMP MOUNTING	78 260 25
13		TRANSFORMER ASSY, EXAM LT, 120V	*81 203 70
		TRANSFORMER ASSY, EXAM LT, 240V	**81 203 80
14		SHROUD, WARMER	81 200 21
15	Refer to Figure 7.4	CABLE ASSY, ELEC MDL TO WRMR HD	81 200 28
16		CLAMP, CABLE, LOOP TY, NYL,.375ID	17 725 64
17		PLUG, PNL FSTNG,.182–.192, CANOE	68 602 02
18		KEEPER, BALL PLUNGER	81 200 19
19		BRACKET, HEATER HEAD (PIVOT)	81 200 09
20		BALL PLUNGER, 5/8–11 THRD	81 200 17
21		WASHER, THRUST, 2.02ID 5.00OD	81 200 16
22		WASHER, THRUST, 2.02ID 4.25OD	81 200 15
23		WASHER, FL, BOT, W/STUDS, 4.250OD	81 200 11
24		SPRING, CPRS .480OD, .061X.093W1L	81 200 13
25		WASHER,FL, TOP, 2.001ID, 4.250OD	81 200 12
26		LABEL, HEATER REPL, 120V	*81 200 34
		LABEL, HEATER REPL, 220–240V	**81 200 35

* applicable to 81 200 70, only

** applicable to 81 200 80, only

TABLE 6.10 RESUSCITAIRE™ RADIANT WARMER HEAD ASSEMBLY, PARTS LIST

(Sheet 2 of 2)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER
27		LABEL, LAMP REPL EN,SP, FR,GR,IT	81 200 33
28		LABEL, GROUND SYMBOL, PROTECTIVE	68 212 00
29		HEATSHIELD, WARMER	81 200 14
30		TOP COVER, WARMER (order items 52 and 53 also)	81 200 32
31		SCR, 6–32X1/4 PN PH SS,SEMS EX	99 022 83
32		SCR, 6–32x3/8 TR PH SS NYLOK	99 023 51
33		SCR, 6–32X5/16 TR PH SS NYLOK	99 023 03
34		SCR, 6–32X3/8 TR PH SS	99 023 31
35		SCR, 8–32X5/16 TR PH SS	99 031 05
36		NUT, HEX, 8–32 KEPS S ZI	99 106 32
37		NUT, HEX, 6–32 KEPS S ZI	99 105 34
38		WSHR, LK, INT, #6 SS	99 122 19
39		WSHR, FL,.172X,500X.062 THK NYL	99 122 65
40		WSHR, LK, SP, #8 S4	99 122 95
41		WSHR, FL,.19IDX.750DX.06T S CA	99 123 32
42		WSHR, SHLDR, .12IDX.44ODX..09 NYL	99 123 38
43		RING, RTNG,EXT, S(WAL5100–200–ZD)	99 187 51
44		TRIM 'U' CHAN, PLSTC, WHT, 8.00LG	78 162 48
45		LOCTITE #242	99 901 77
46		LABEL, BARCODE, GENERIC, MEDIUM	81 000 38
47		LABEL, DATA TAG	81 001 01
48		NOT USED	
49		WSHR,FL,.281IDX.62ODX.06T S CA	99 125 33
50		STANDOFF, 6–32ID .81LG PHNOLIC	81 200 37
51		SPRING, RETAINING	81 200 43
52		LABEL, EXPLOSION HAZARD, ENG LABEL, EXPLOSION HAZARD, SPN LABEL, EXPLOSION HAZARD, ITL	78 265 41CC 78 265 42CC 78 265 43CC
53		LABEL, CAUT SHK HAZ, TOP COV, ENG LABEL, CAUT SHK HAZ, TOP COV, SPN LABEL, CAUT SHK HAZ, TOP COV, ITL	81 200 50 81 200 51 81 200 54

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;;
;SEMBLY OF BOARD TO CONFORM WITH SPEC. NO. 00 945 12.
IRK ASSEMBLY NUMBER AND REVISION LEVEL IN AREA SHOWN WITH
)9 ±.03 HIGH CHARACTERS USING A PERMANENT SMUDGE-PROOF INK.
XLOR TO CONTRAST WITH BOARD MATERIAL.
MPONENT LEAD AND SOLDER BUILD UP NOT TO EXCEED .06 MAX.
OM SURFACE OF BOARD.
UTION: ASSEMBLY CONTAINS STATIC SENSITIVE DEVICES.
ECIAL HANDLING REQUIRED.
INDICATES VARIABLES AT ITEM NO'S. 11,12,27,28,29,31,34,60,
61,66,80.

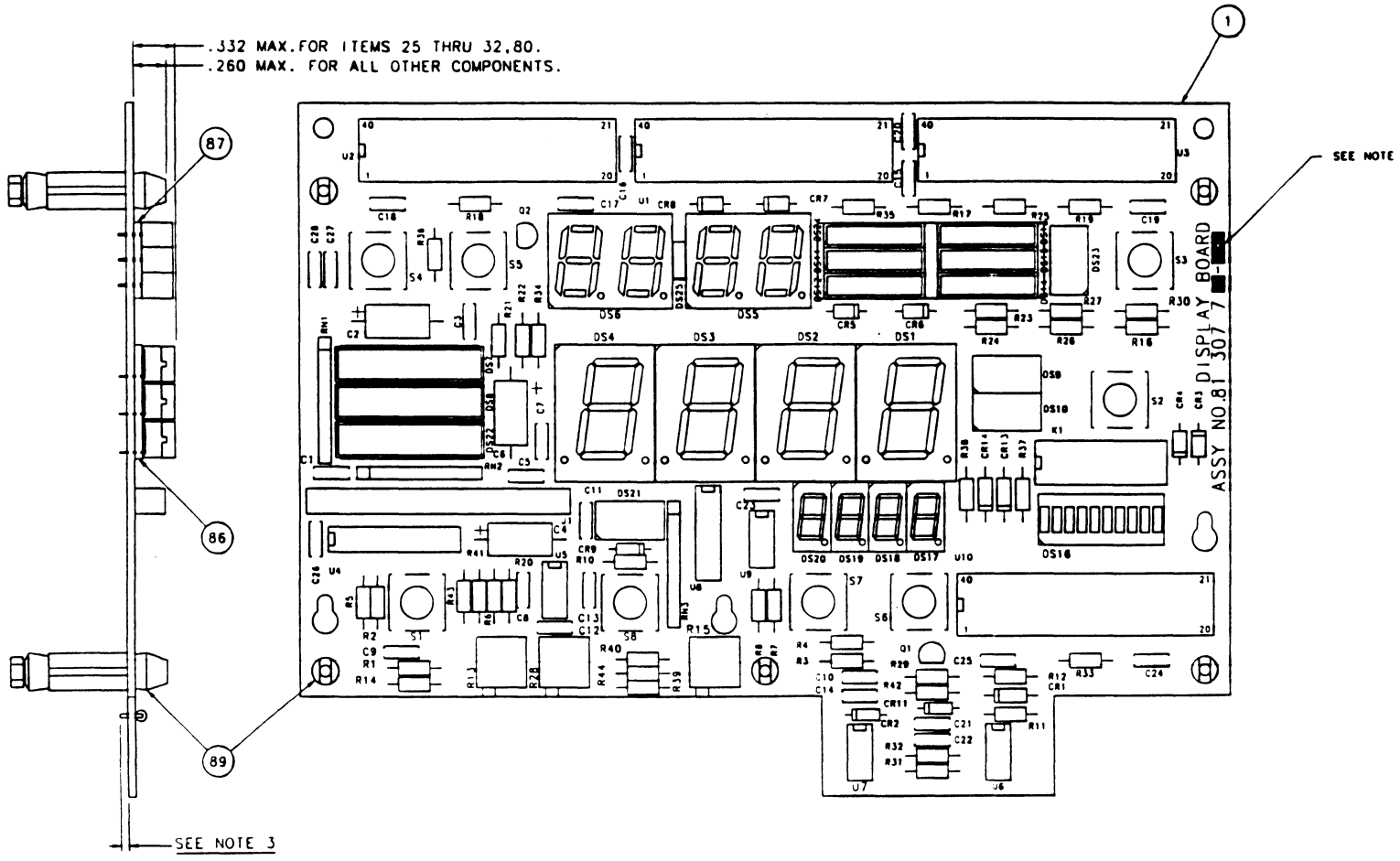

FIGURE 6.11 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER PCB1 DISPLAY BOARD ASSEMBLY (SHEET 1 OF 1)

TABLE 6.11 RESUSCITAIRE™ RADIANT WARMER PCB1 DISPLAY BOARD ASSEMBLY, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER

THE MAIN BOARD IS A MULTI–LAYERED BOARD. ATTEMPTING TO REPLACE ANY COMPONENTS MAY RESULT IN DAMAGE TO THE BOARD.

PCB1 ASSY, DISPLAY, W/BABY MODE 81 307 75

JP5	JP6	UNIT CONFIG	FRONT PANEL DISPLAY
on	on	100 V 50/60 Hz	100
off	off	120 V 50/60 Hz	120
off	on	220 V 50 Hz PTB	P220
on	off	220 V 50/60 Hz	220

NOTES
1. ASSEMBLY OF BOARD TO CONFORM WITH SPEC. NO. 00 945 12.
2. PLACE A PIECE OF CORRECTION TAPE (ONE LINE ECR-16 STOCKED AS OFFICE SUPPLY) CUT 9/19" LONG OVER THE WHITE FIELDS WHERE THE LAST TWO DIGITS OF THE PART NUMBER AND THE BOARD REV. LEVEL WOULD BE RECORDER. WHEN THIS IS ACCOMPLISHED MARK THE LAST TWO DIGITS OF THE PART NUMBER AND THE REVISION LEVEL ON THE CORRECTION TAPE WITH.09 ±.03 HIGH CHARACTERS USING PERMANENT SMUDGE-PROOF INK, COLOR TO CONTRAST WITH BOARD MATERIAL.
3. COMPONENT LEAD AND SOLDER BUILD UP NOT TO EXCEED .06 MAX. FROM SURFACE OF BOARD.
4. CAUTION: ASSEMBLY CONTAINS STATIC SENSITIVE DEVICES, SPECIAL HANDLING REQUIRED.

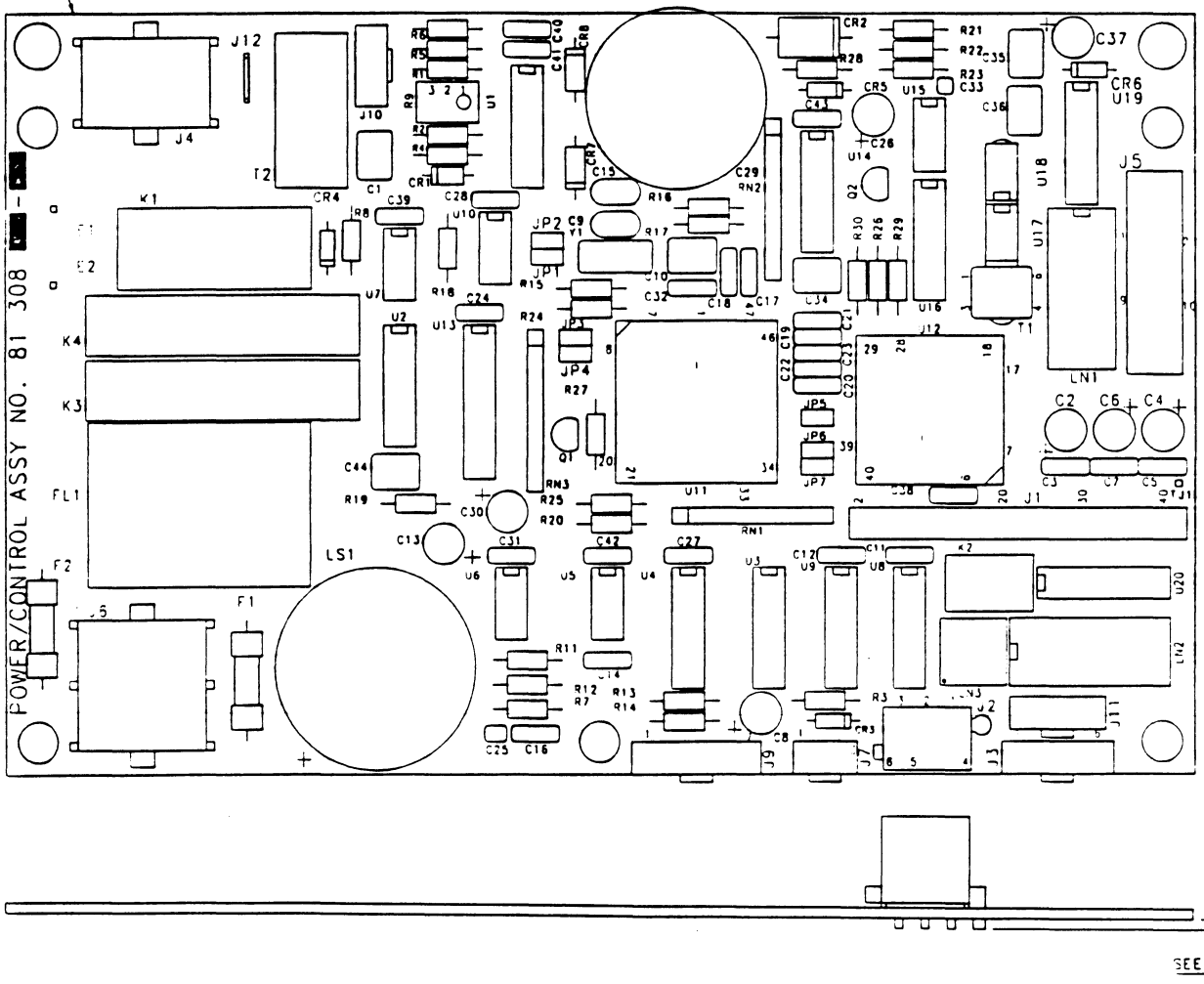

FIGURE 6.12 PARTS LOCATION DIAGRAM, RESUSCITAIRE™ RADIANT WARMER PCB2 POWER AND CONTROL BOARD ASSEMBLY (SHEET 1 OF 1)

TABLE 6.12 RESUSCITAIRE™ RADIANT WARMER PCB2 POWER AND CONTROL BOARD ASSEMBLY, PARTS LIST

(Sheet 1 of 1)

ITEM NO.	REFERENCE DESIG.	DESCRIPTION	PART NUMBER

THE MAIN BOARD IS A MULTI–LAYERED BOARD. ATTEMPTING TO REPLACE ANY COMPONENTS MAY RESULT IN DAMAGE TO THE BOARD.

PCB2 ASSY, POWER AND CONTROL BOARD, 120V 81 308 70

PCB2 ASSY, POWER AND CONTROL BOARD, 220–240V 81 308 80

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SECTION 7
DIAGRAMS

7.1 GENERAL

This section provides the schematic diagrams for the Resuscitaire™ Radiant Warmer.

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NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, 1%, 1/8W.
2. CAPACITANCE VALUES ARE IN MICROFARADS.
3. INDUCTANCE VALUES ARE IN MICROHENRIES.

Skin Temperature

Apgar Timer

Set Temperature

ASSY 81 307 75 ONLY!

ENHANCED ONLY!

APGAR COLON

SKIN Th2

Mode

Mode

Alarms

Alarms

Alarms

Alarms

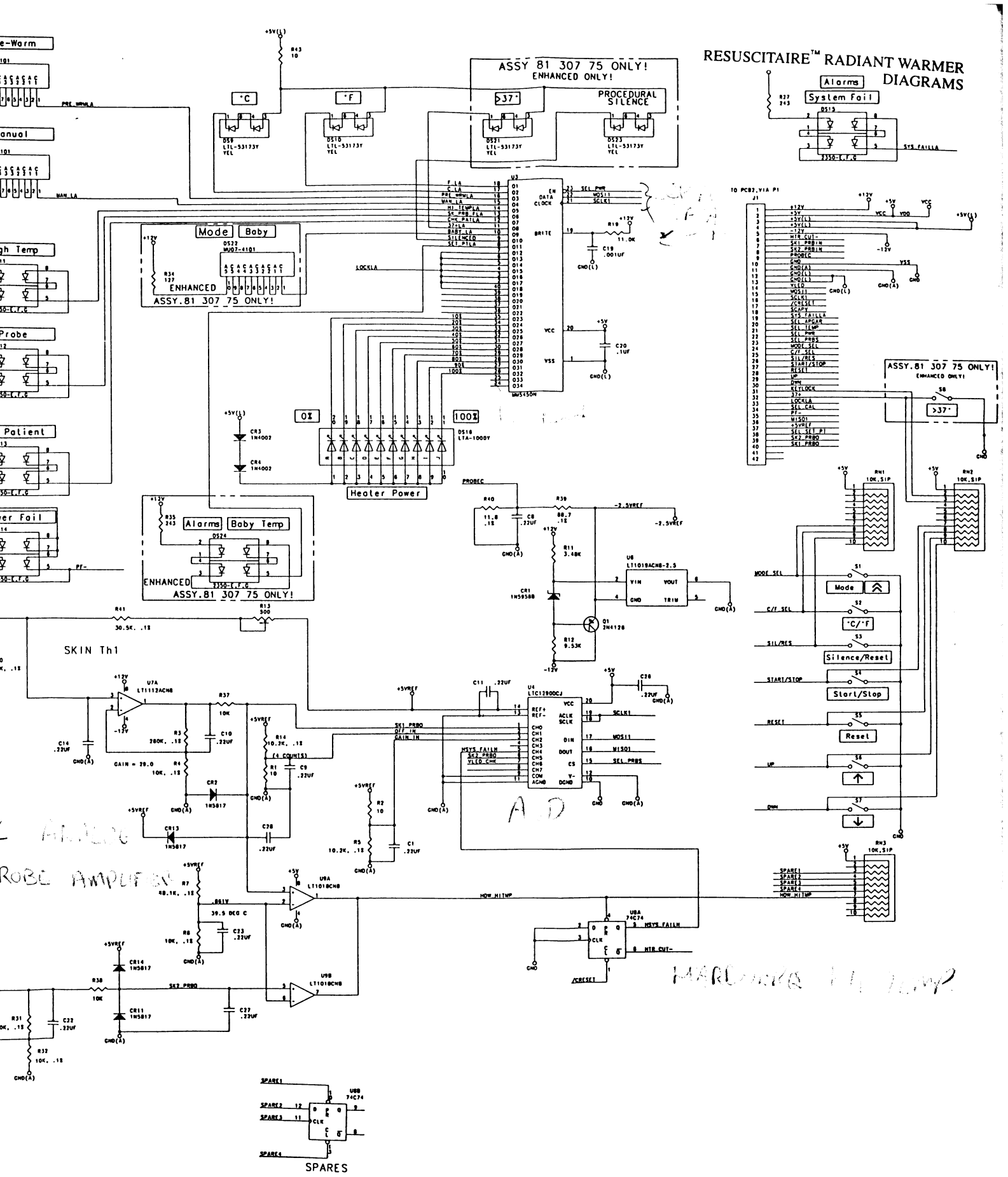
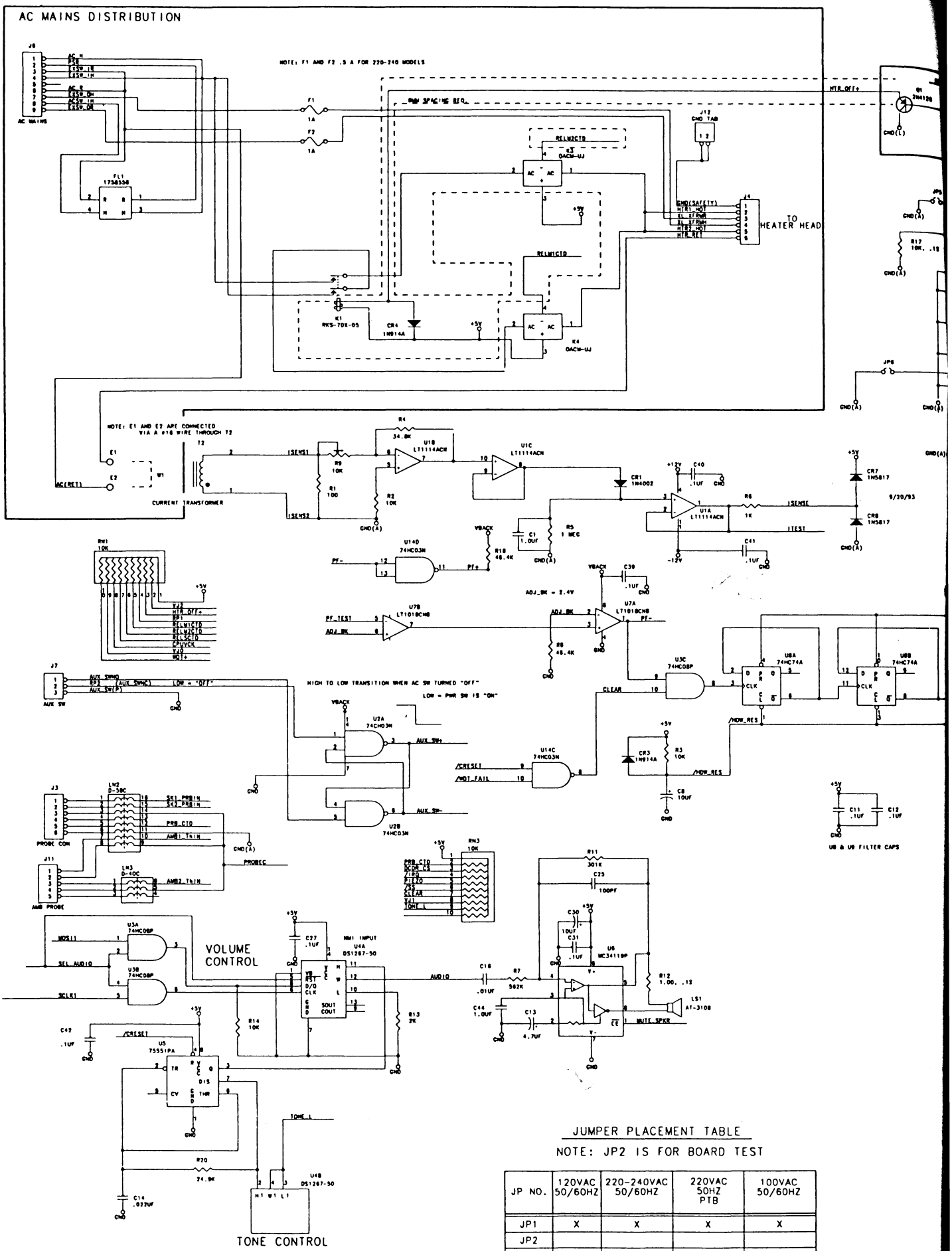


**FIGURE 7.1 RESUSCITAIRE™ RADIANT WARME
PCB1, DISPLAY BOARD SCHEMATIC
(SHEET 1 OF 1)**



JUMPER PLACEMENT TABLE

NOTE: JP2 IS FOR BOARD TEST

JP NO.	120VAC 50/60HZ	220-240VAC 50/60HZ	220VAC 50HZ PTB	100VAC 50/60HZ
JP1	X	X	X	X
JP2				
JP3	X	X	X	X
JP4	X	X	X	X
JP5		X		X
JP6			X	X
JP7				

NOTES: UNLESS OTHERWISE SPECIFIED

1. RESISTANCE VALUES ARE IN OHMS, 1%, 1/8W.
2. CAPACITANCE VALUES ARE IN MICROFARADS.
3. INDUCTANCE VALUES ARE IN MICROHENRIES.

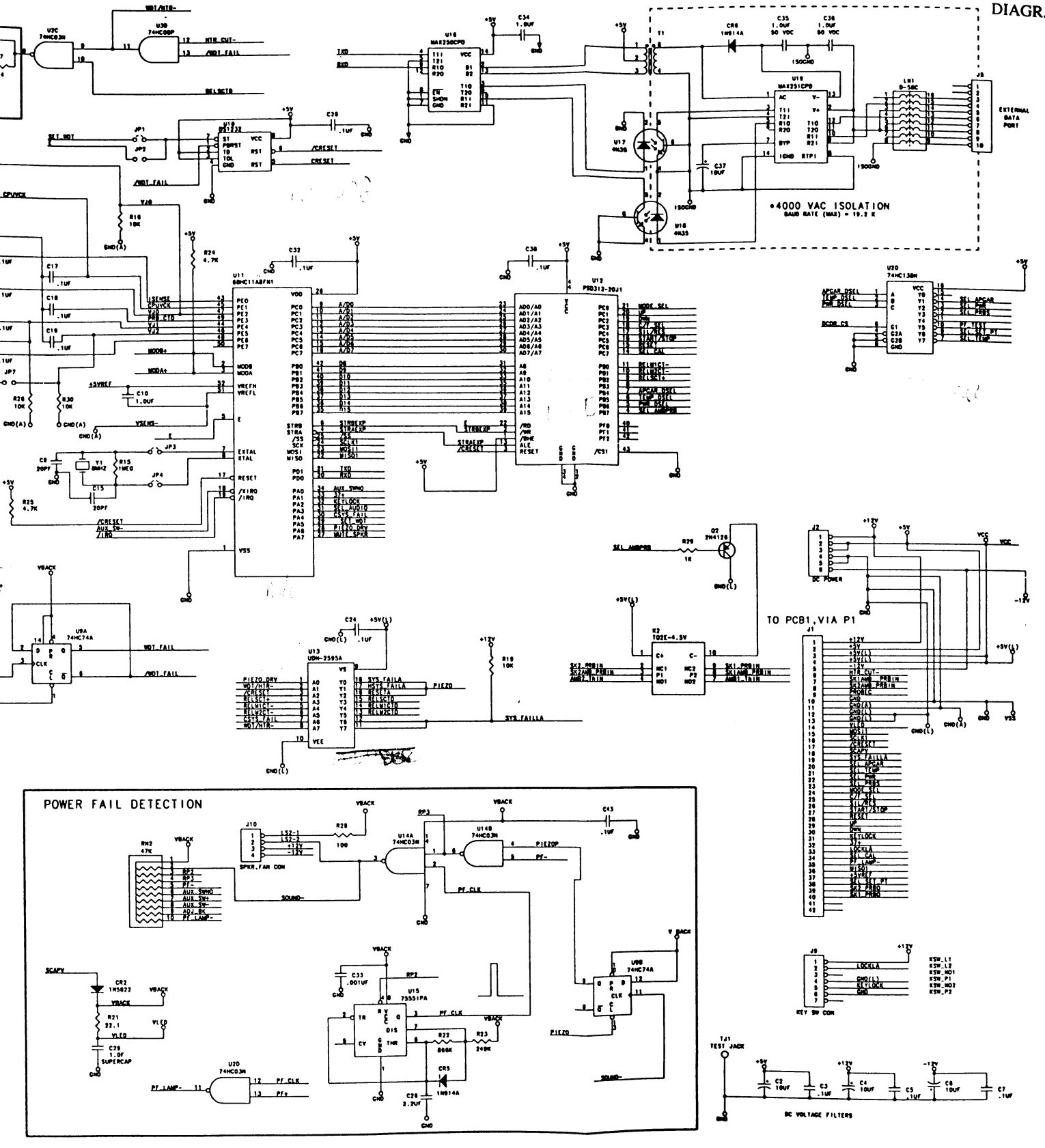
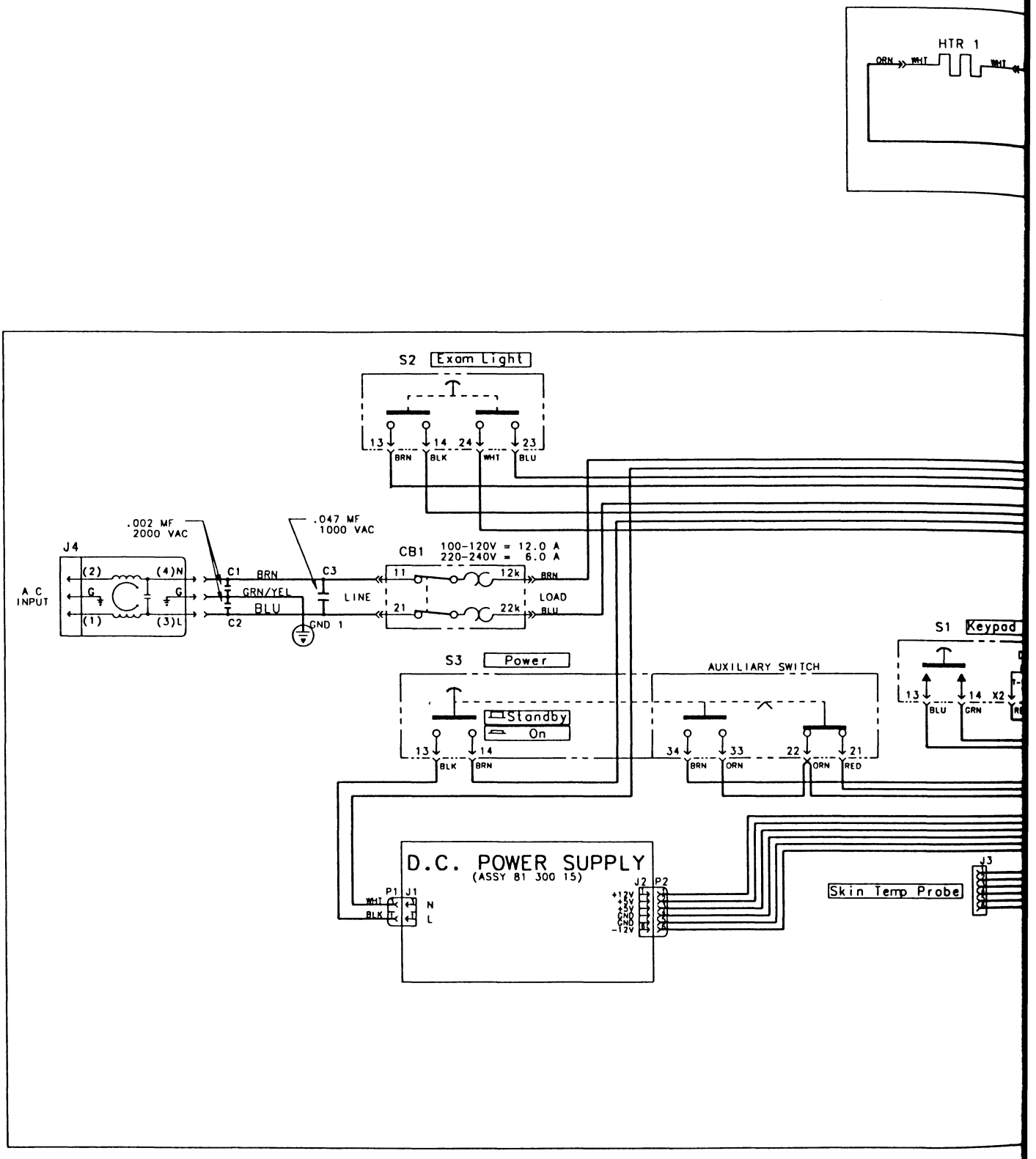


**FIGURE 7.2 RESUSCITAIRE™ RADIANT WARM
PCB2, POWER AND CONTROL BOARD SCHEMA
(SHEET 1 OF 1)**


HTR 1
ORN
WHT
WHT
S2 Exam Light
13
14
24
23
BRN
BLK
WHT
BLU
.002 MF
2000 VAC
.047 MF
1000 VAC
J4
CB1
100-120V = 12.0 A
220-240V = 6.0 A
A C
INPUT
(2)
(4)N
(1)
(3)L
C1
C2
C3
BRN
GRN/YEL
BLU
LINE
GND 1
11
21
12k
22k
BRN
LOAD
BLU
S1 Keypad
S3 Power
AUXILIARY SWITCH
Standby
On
13
14
34
33
22
21
BLK
BRN
BRN
ORN
ORN
RED
13
14 X2
BLU
GRN
D.C. POWER SUPPLY
(ASSY 81 300 15)
P1
J1
WHT
BLK
N
L
J2
P2
+12V
+5V
GND
-12V
J3
Skin Temp Probe

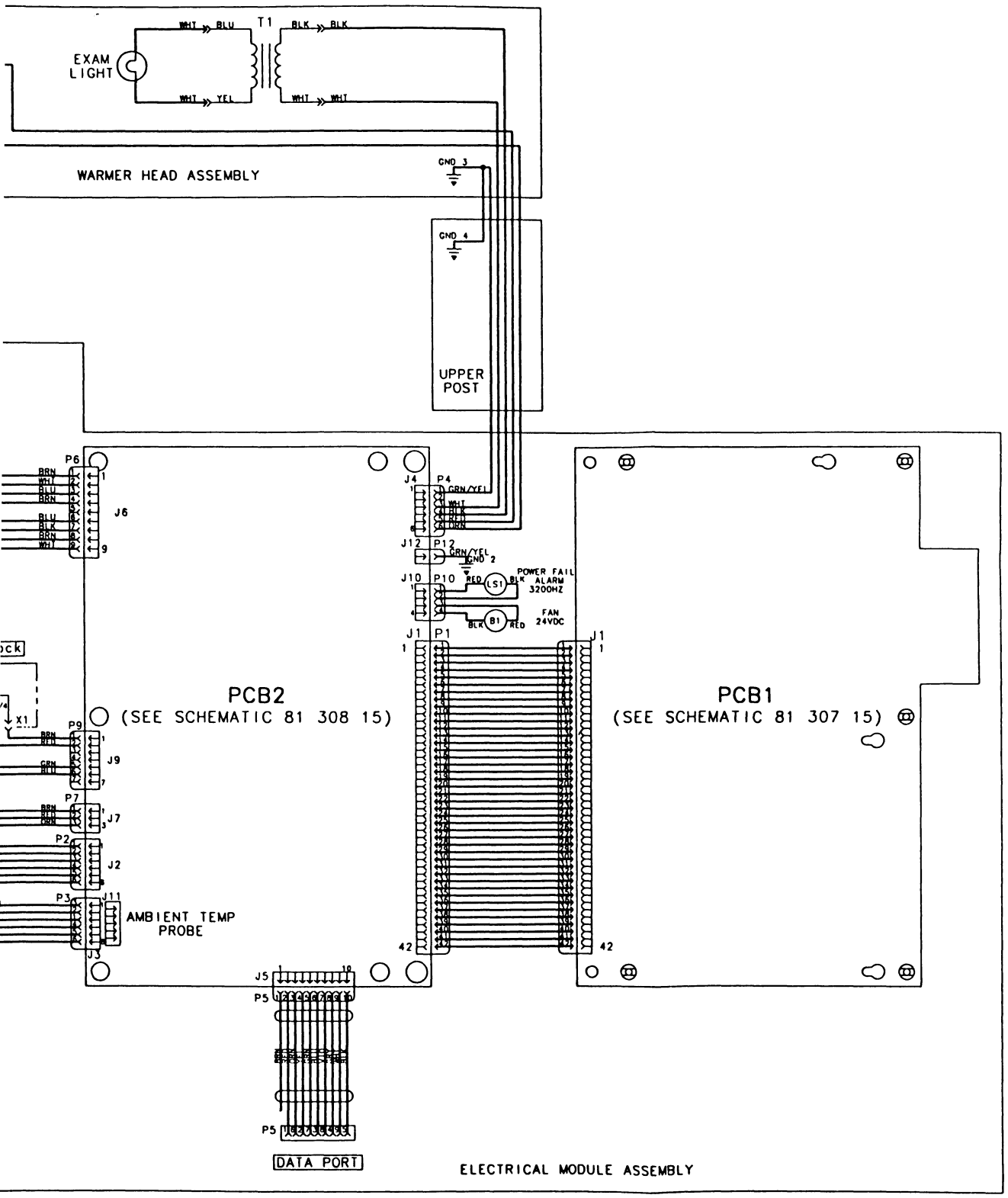
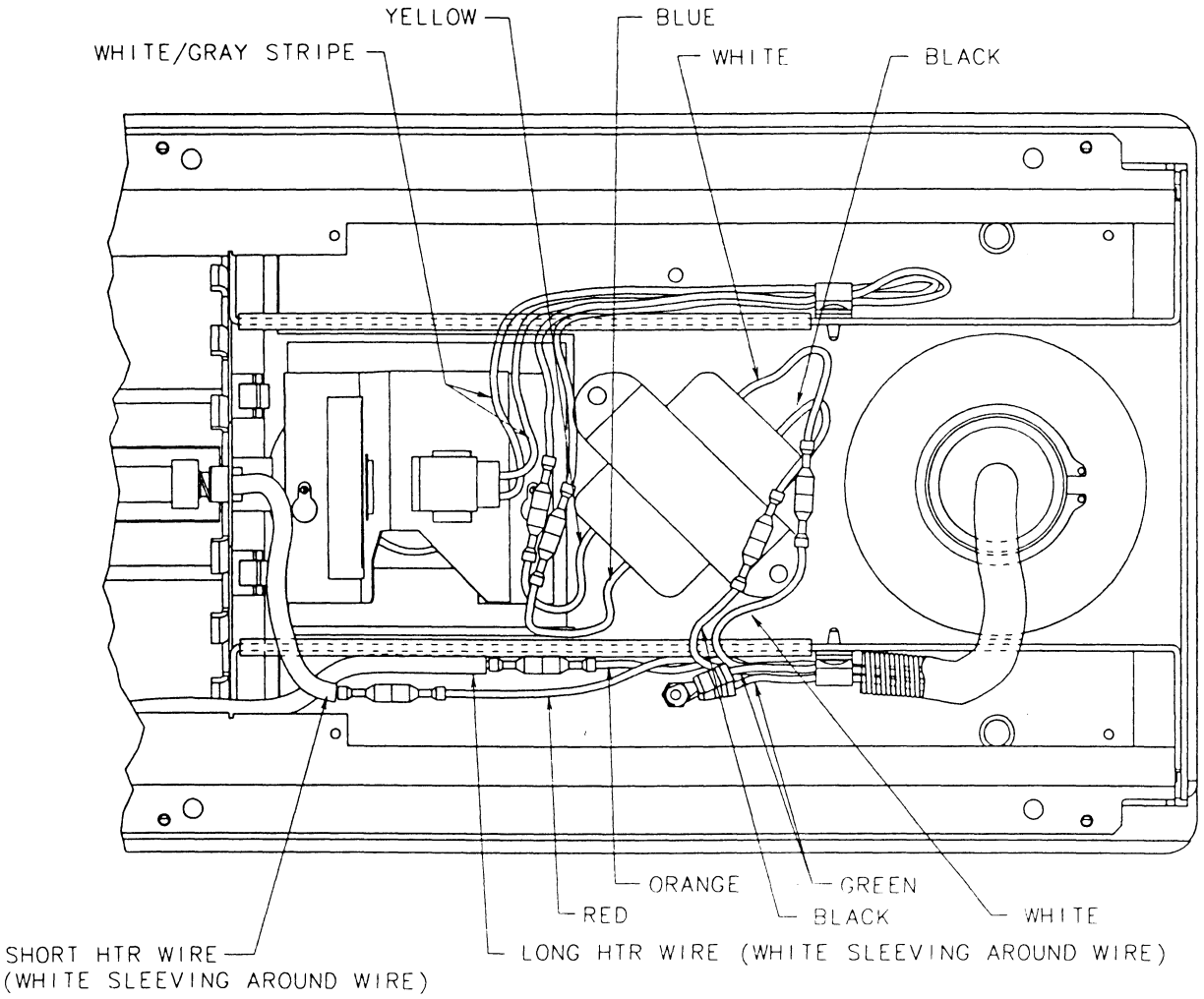


FIGURE 7.3 RESUSCITAIRE™ RADIANT WAR INTER–CONNECT DIAGRAM (SHEET 1 OF 1)



TOP VIEW
SHOWING
WIRE ROUTING THROUGH
CABLE CLAMPS

FIGURE 7.4 RESUSCITAIRE™ RADIANT WARMER, WARMER HEAD ASSEMBLY WIRING SCHEMATIC (SHEET 1 OF 1)

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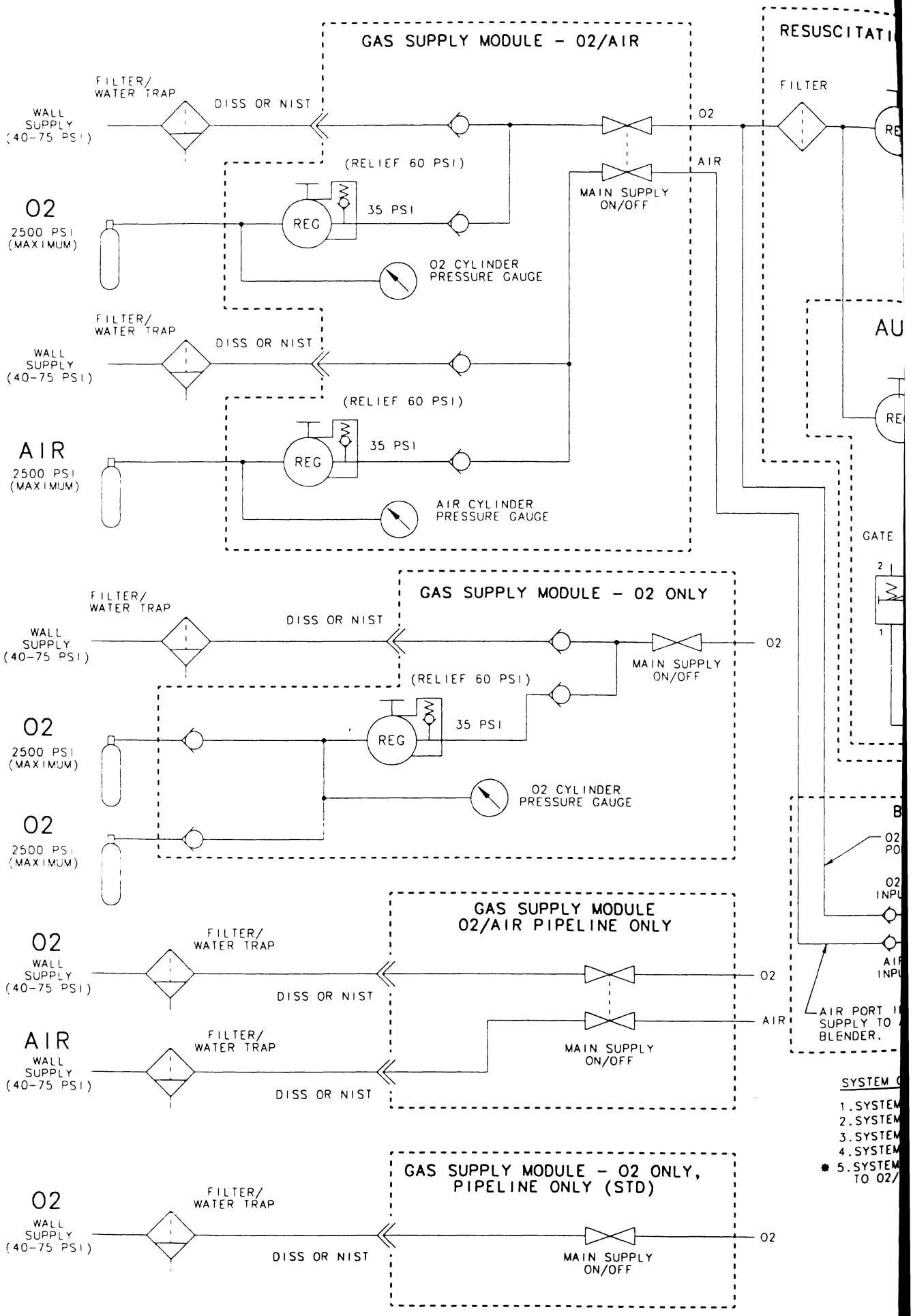
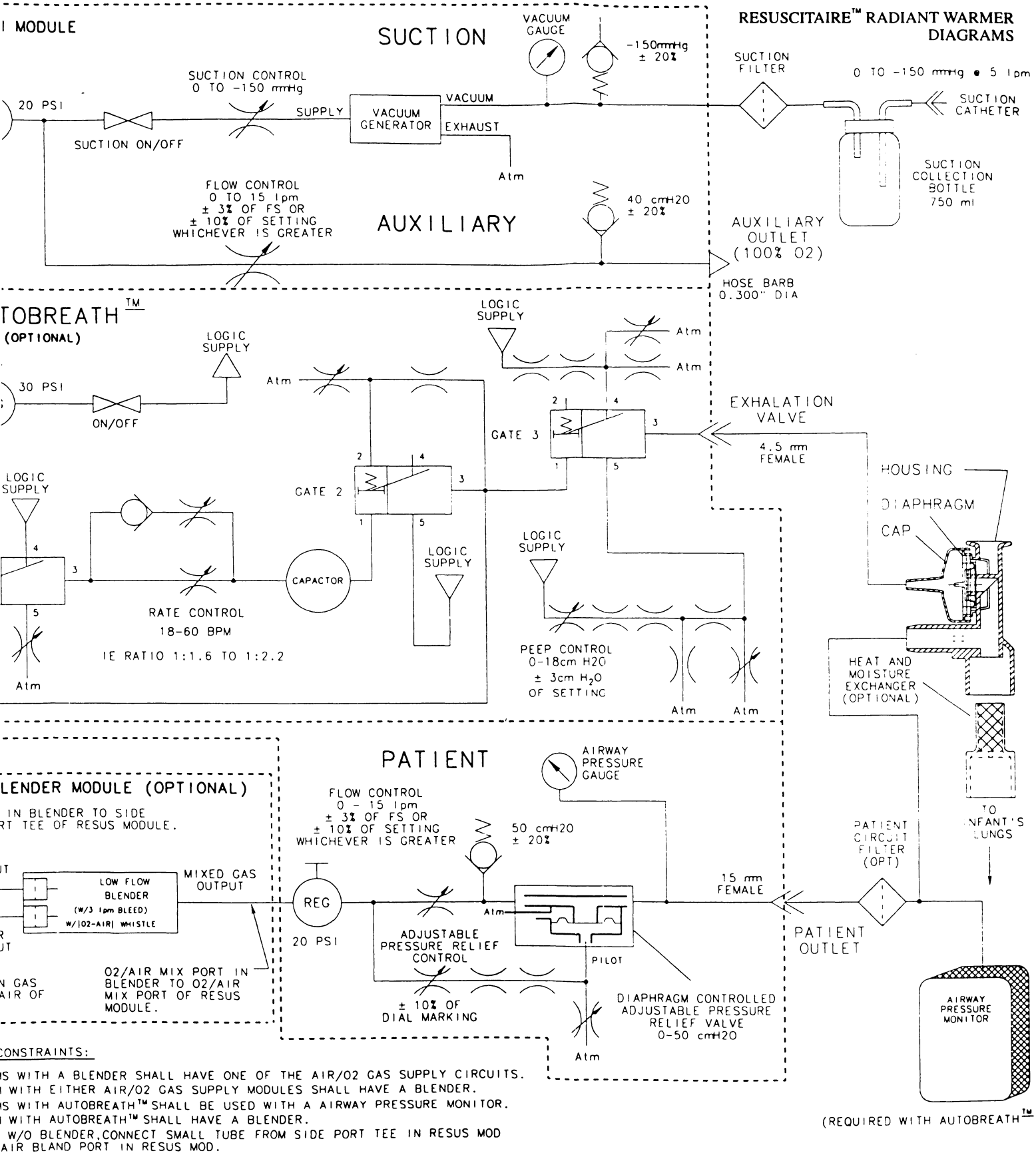

GAS SUPPLY MODULE - 02/AIR
FILTER/
WATER TRAP
DISS OR NIST
WALL
SUPPLY
(40-75 PSI)
02
(RELIEF 60 PSI)
AIR
MAIN SUPPLY
ON/OFF
02
2500 PSI
(MAXIMUM)
REG
35 PSI
02 CYLINDER
PRESSURE GAUGE
FILTER/
WATER TRAP
DISS OR NIST
WALL
SUPPLY
(40-75 PSI)
(RELIEF 60 PSI)
AIR
2500 PSI
(MAXIMUM)
REG
35 PSI
AIR CYLINDER
PRESSURE GAUGE
RESUSCITATI
FILTER
AU
GATE
GAS SUPPLY MODULE - 02 ONLY
FILTER/
WATER TRAP
DISS OR NIST
WALL
SUPPLY
(40-75 PSI)
02
MAIN SUPPLY
ON/OFF
(RELIEF 60 PSI)
02
2500 PSI
(MAXIMUM)
REG
35 PSI
02 CYLINDER
PRESSURE GAUGE
02
2500 PSI
(MAXIMUM)
GAS SUPPLY MODULE
02/AIR PIPELINE ONLY
02
WALL
SUPPLY
(40-75 PSI)
FILTER/
WATER TRAP
DISS OR NIST
02
AIR
AIR
WALL
SUPPLY
(40-75 PSI)
FILTER/
WATER TRAP
MAIN SUPPLY
ON/OFF
DISS OR NIST
AIR PORT I
SUPPLY TO
BLENDER.
SYSTEM
1. SYSTEM
2. SYSTEM
3. SYSTEM
4. SYSTEM
* 5. SYSTEM
TO 02/
GAS SUPPLY MODULE - 02 ONLY,
PIPELINE ONLY (STD)
02
WALL
SUPPLY
(40-75 PSI)
FILTER/
WATER TRAP
DISS OR NIST
02
MAIN SUPPLY
ON/OFF



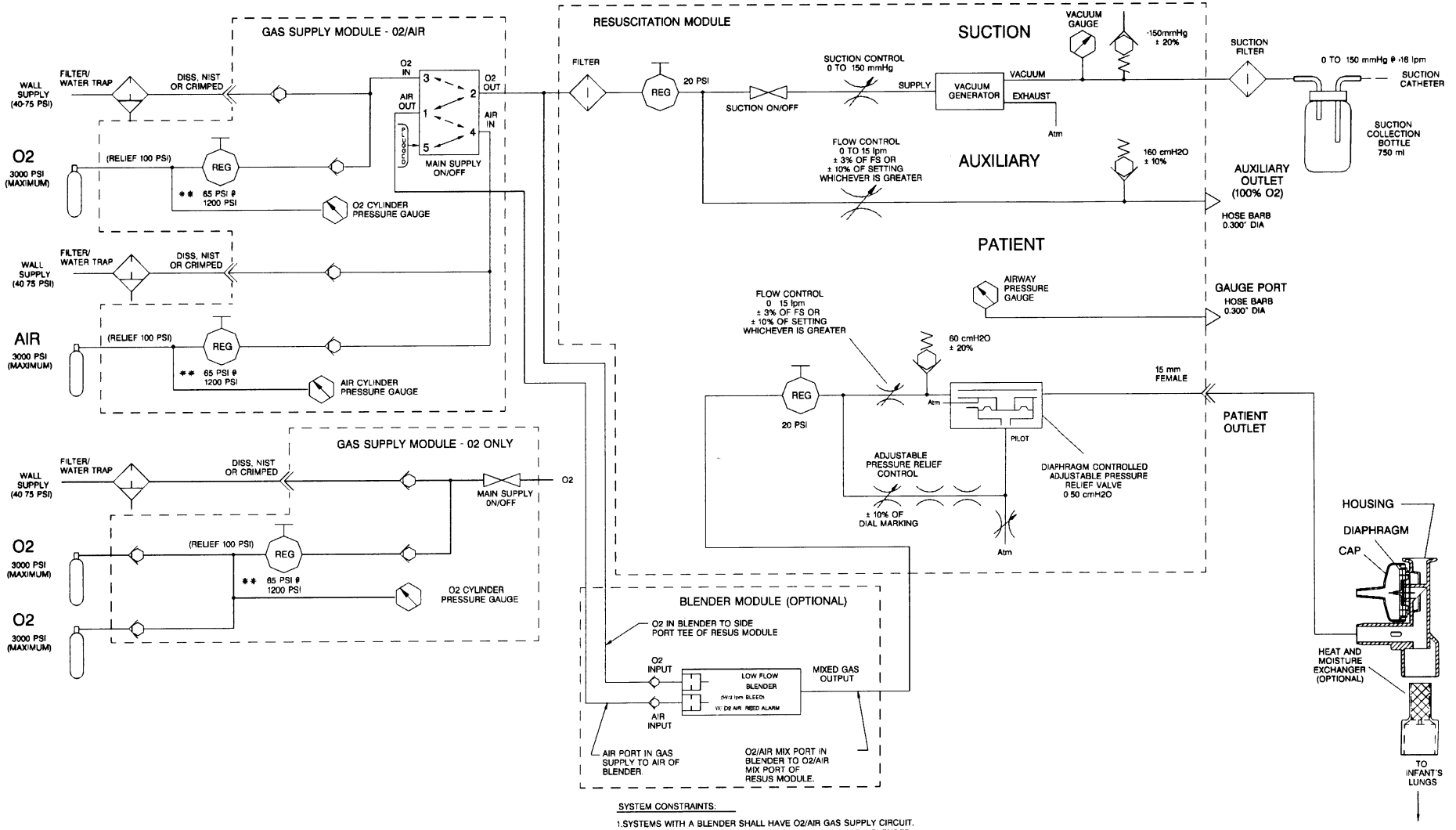
CONSTRAINTS:

- S WITH A BLENDER SHALL HAVE ONE OF THE AIR/O2 GAS SUPPLY CIRCUITS.
- WITH EITHER AIR/O2 GAS SUPPLY MODULES SHALL HAVE A BLENDER.
- S WITH AUTOBREATH™ SHALL BE USED WITH A AIRWAY PRESSURE MONITOR.
- WITH AUTOBREATH™ SHALL HAVE A BLENDER.
- W/O BLENDER, CONNECT SMALL TUBE FROM SIDE PORT TEE IN RESUS MOD AIR BLAND PORT IN RESUS MOD.

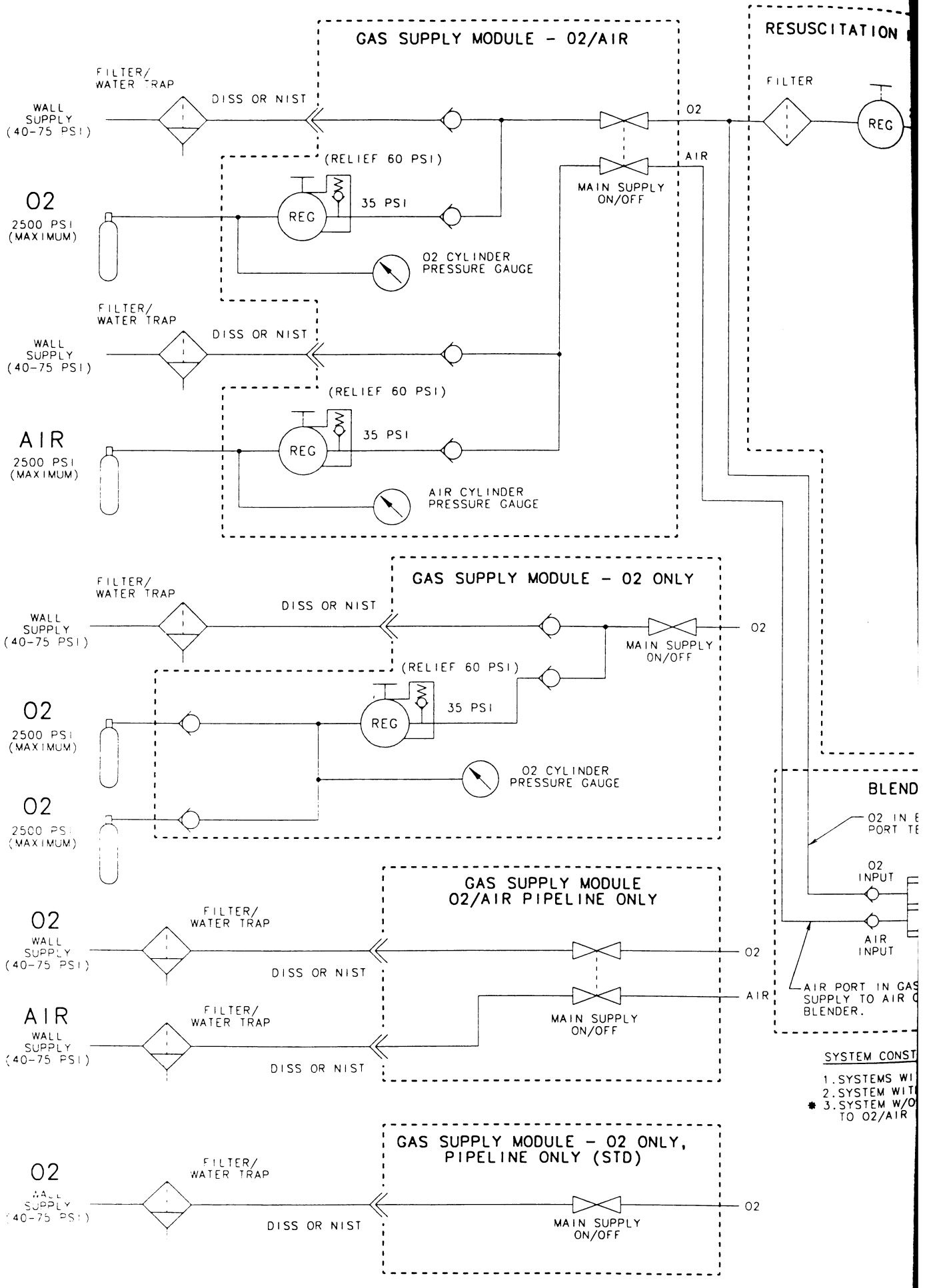
FIGURE 7.5 RESUSCITAIRE™ RADIANT WARMER PNUEMATIC SYSTEM (WITH AUTOBREATH) SCHEM (SHEET 1 OF 1)

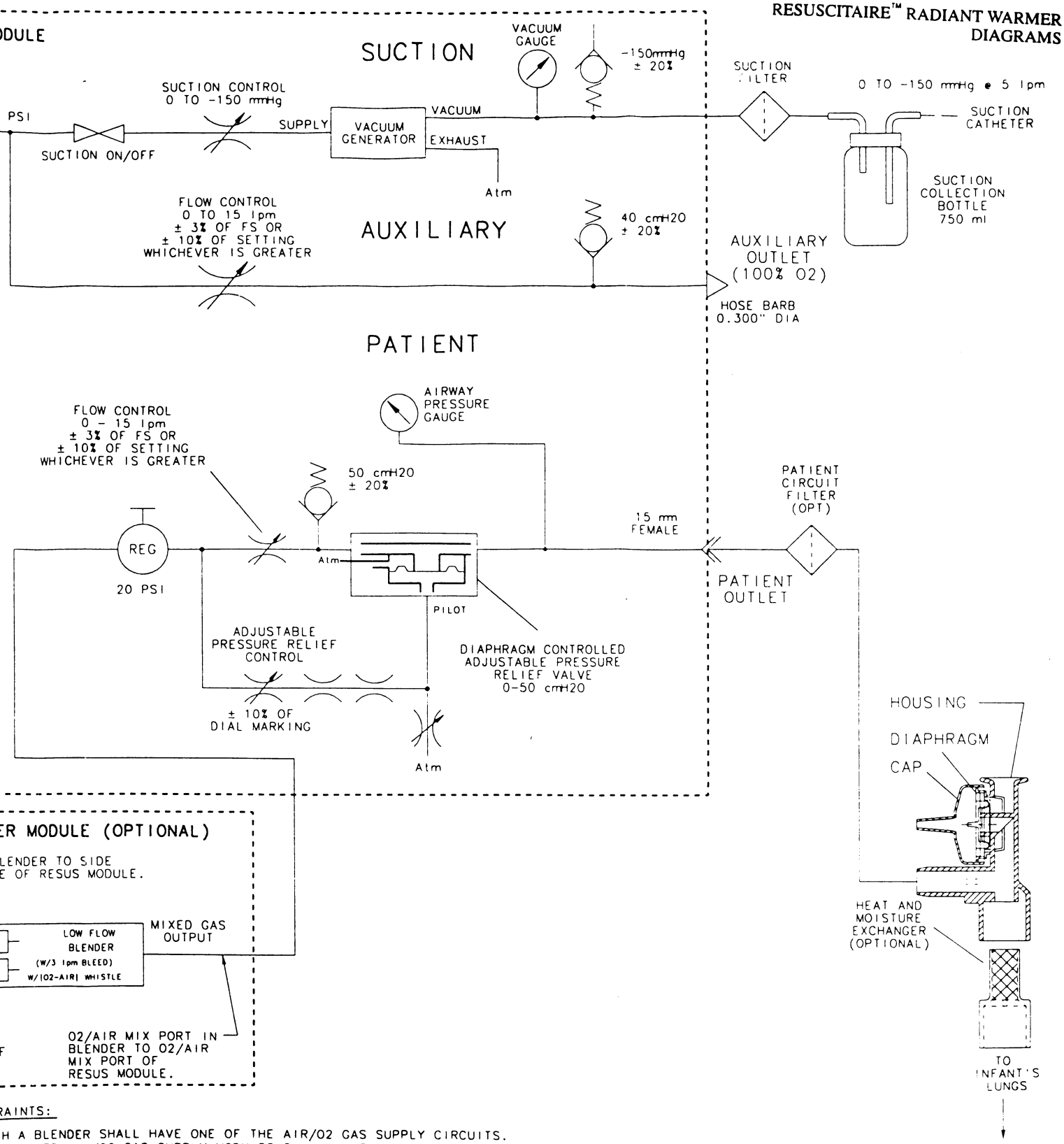
Pneumatic System without AutoBreath™ Infant Resuscitator

Back to Chapter 3


GAS SUPPLY MODULE - 02/AIR
WALL SUPPLY (40-75 PSI)
FILTER/ WATER TRAP
DISS, NIST OR CRIMPED
O2 IN
AIR OUT
O2 OUT
AIR IN
MAIN SUPPLY ON/OFF
O2
3000 PSI (MAXIMUM)
(RELIEF 100 PSI)
REG
** 65 PSI @ 1200 PSI
O2 CYLINDER PRESSURE GAUGE
AIR
3000 PSI (MAXIMUM)
AIR CYLINDER PRESSURE GAUGE
GAS SUPPLY MODULE - 02 ONLY
MAIN SUPPLY ON/OFF
O2
RESUSCITATION MODULE
FILTER
20 PSI
SUCTION
SUCTION CONTROL 0 TO 150 mmHg
SUPPLY
VACUUM GENERATOR
VACUUM
EXHAUST
Atm
VACUUM GAUGE
-150mmHg ± 20%
SUCTION FILTER
0 TO 150 mmHg @ >16 lpm
SUCTION CATHETER
SUCTION COLLECTION BOTTLE 750 ml
SUCTION ON/OFF
FLOW CONTROL 0 TO 15 lpm ± 3% OF FS OR ± 10% OF SETTING WHICHEVER IS GREATER
AUXILIARY
160 cmH2O ± 10%
AUXILIARY OUTLET (100% O2)
HOSE BARB 0.300" DIA
PATIENT
AIRWAY PRESSURE GAUGE
GAUGE PORT
HOSE BARB 0.300" DIA
FLOW CONTROL 0 15 lpm ± 3% OF FS OR ± 10% OF SETTING WHICHEVER IS GREATER
60 cmH2O ± 20%
15 mm FEMALE
PATIENT OUTLET
PILOT
ADJUSTABLE PRESSURE RELIEF CONTROL
DIAPHRAGM CONTROLLED ADJUSTABLE PRESSURE RELIEF VALVE 0 50 cmH2O
± 10% OF DIAL MARKING
BLENDER MODULE (OPTIONAL)
O2 IN BLENDER TO SIDE PORT TEE OF RESUS MODULE
O2 INPUT
AIR INPUT
LOW FLOW BLENDER
MIXED GAS OUTPUT
AIR PORT IN GAS SUPPLY TO AIR OF BLENDER.
O2/AIR MIX PORT IN BLENDER TO O2/AIR MIX PORT OF RESUS MODULE.
HOUSING
DIAPHRAGM
CAP
HEAT AND MOISTURE EXCHANGER (OPTIONAL)
TO INFANT'S LUNGS
SYSTEM CONSTRAINTS:
1.SYSTEMS WITH A BLENDER SHALL HAVE O2/AIR GAS SUPPLY CIRCUIT.
2.SYSTEM WITH O2/AIR GAS SUPPLY MODULE SHALL HAVE A BLENDER.
* 3.SYSTEM W/O BLENDER,CONNECT SMALL TUBE FROM SIDE PORT TEE OF RESUS MOD TO O2/AIR BLEND PORT OF RESUS MOD.
** 4.REGULATOR IS 45 PSI @ 1500 PSI INLET FOR CANADIAN (CAN) UNITS.

m222b073


GAS SUPPLY MODULE - 02/AIR
RESUSCITATION
FILTER/
WATER TRAP
DISS OR NIST
WALL
SUPPLY
(40-75 PSI)
02
2500 PSI
(MAXIMUM)
(RELIEF 60 PSI)
REG
35 PSI
02 CYLINDER
PRESSURE GAUGE
MAIN SUPPLY
ON/OFF
AIR
FILTER
REG
AIR
2500 PSI
(MAXIMUM)
AIR CYLINDER
PRESSURE GAUGE
GAS SUPPLY MODULE - 02 ONLY
BLEND
02 IN
PORT
02
INPUT
AIR
INPUT
AIR PORT IN GAS
SUPPLY TO AIR
BLENDER.
GAS SUPPLY MODULE
02/AIR PIPELINE ONLY
SYSTEM CONST
1. SYSTEMS WI
2. SYSTEM WIT
* 3. SYSTEM W/O
TO 02/AIR
GAS SUPPLY MODULE - 02 ONLY,
PIPELINE ONLY (STD)



RAINTS:

H A BLENDER SHALL HAVE ONE OF THE AIR/O2 GAS SUPPLY CIRCUITS.
EITHER AIR/O2 GAS SUPPLY MODULES SHALL HAVE A BLENDER.
BLENDER, CONNECT SMALL TUBE FROM SIDE PORT TEE OF RESUS MOD
LEND PORT OF RESUS MOD.

FIGURE 7.6 RESUSCITAIRE™ RADIANT WARMER PNUEMATIC SYSTEM (W/O AUTOBREATH) SCHEM (SHEET 1 OF 1)